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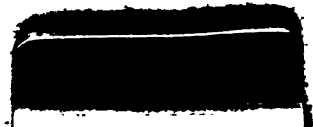
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**HYSTERECTOMY FOR FIBROID, CARCINOMA AND
IN PREGNANCY, AFTER LIGATION OF THE ANTERIOR
TRUNK OF THE INTERNAL ILIAC ARTERY.***

BY WILLIAM M. POLK, M. D., NEW YORK.

I have here some specimens and some dissections bearing upon the question of total extirpation of the uterus in connection with carcinoma. You may perhaps remember that at our meeting of October 3, 1893, I called the attention of the Society to the desirability and the feasibility of removing a cancerous uterus by the suprapubic method, and that by the method that we were then adopting for total extirpation of the uterus you could take out not only the uterus, but a good part of the vagina. Then, on the 20th of the following March, I called the attention of the Society to the fact that by ligating the uterine artery outside of the ureter, in one case, I had been able to dissect out the glands on that side, and had there accomplished a certain purpose which we had all been aiming at—namely, getting rid of glands that were diseased. I was not satisfied, however, with the ease with which you could get at uterine vessels in this way, nor was I satisfied with the control which ligation of the uterine artery at that point gave us of the bottom of the pelvis, and therefore, after some experimentation, I ligated the anterior trunk of the internal iliac, which I found to be an absolute necessity to control the hæmorrhage. I take it that when the glands are extensively involved in cancerous

* Read before the New York Obstetrical Society, April 21, 1896.

disease of the uterus that the chance of a radical operation is nil, because when this chain of glands, extending from the side of the uterus to the space about the anterior and posterior branches of the internal iliac, and more particularly to the anterior surface of the sacrum, is involved, the chances are that the lumbar glands are so far implicated that anything like a radical procedure is a surgical impossibility. Therefore, if the operation is to do any good whatever, it must be applied at the earliest time that the carcinoma appears. We all know that, even in cases which have been admittedly free from implication of the glands, the difficulty of removing the diseased tissues immediately around the uterus by the vaginal method was such that a return of the disorder was looked for within the next year, or two years at the most; I believe that has practically been the clinical experience of all who have dealt with the subject. So that if you conclude to operate, your operation must be done at the earliest possible moment, and not only that, but it must be so adapted as to include not merely the lower segment of the uterus, but also the upper portion of the vagina and the cellular tissue outside. The operation involves such an amount of interference with the floor of the pelvis that it is rendered not only difficult, but for very many people practically impossible, unless you secure a bloodless field. My experience taught me that ligation of the uterine arteries did not give me sufficient control. In order to accomplish this purpose, it was necessary for me to ligate the anterior trunk of the uterine artery. I have done this operation not only in carcinoma, but in pregnancy and in fibroid disease. The specimens I show you to-night are fibroid disease; those I showed you before were carcinoma. In this specimen fibroid I ligated the uterus at its origin, and found that there was such an amount of hæmorrhage from the posterior portion of the vagina, particularly where the utero-sacral ligament came in, as to show that there was an important vessel at that point; and not only this, but the bleeding from the vagina was such as to make it necessary for me to ligate the ends of the vagina. Now, it is interesting to state that in this case I discovered that the uterine artery was small—much smaller on the left side than it was upon the right; and when I cut off the vagina I discovered that there was a large vessel that came in along the route of the utero-sacral ligament, making it necessary for me to ligate at that point. In my dissection I made out that there is in all cases a vessel which comes to the uterus below the utero-sacral ligament—in some instances larger than others—which is a branch of the middle hæmorrhoidal. The case of fibroid tumor referred to

was no doubt one in which the feeder of the lower segment of the uterus was not merely the uterine artery on that side but this branch, and it would have been controlled by ligation of the anterior trunk and not by ligation of the uterine artery. And yet even ligation of the internal iliac will not prevent in all cases bleeding from the posterior vaginal wall. In many people the communications between the superior and middle hæmorrhoidal are so free and large that the vaginal branches of the latter are fed from the former, causing a persistent oozing, only to be controlled by separate ligation of the structure fed by the middle hæmorrhoidal artery—that is, the posterior, middle, and upper vaginal regions.

In this case I observed particularly the conditions which arose in the bladder, and was surprised to find that nothing untoward occurred, that there was no increase of secretion, and that there was no blood in the urine. So far as the clinical aspect of the case was concerned, it did not seem to differ from that which we have in an ordinary hysterectomy. To this I will make one exception, which is, that the woman complained of a great deal of pain, but it was difficult for me to say in her case what was the cause. This subject has recently been brought up in a most admirable article by Dr. Clarke, of Johns Hopkins. He seems to rest content with ligating the uterine artery at its origin.

It is obvious that this operation, as applied in a hysterectomy for fibroids or in pregnancy (a substitute for Porro's operation), will have no place except in the few instances where the vessels can not be reached easily at the sides of the cervix. Then it will prove very valuable, as my cases have shown me, all of them—one pregnancy, two fibroids, and seven cases of cancer—having done quite as well as any others.

As applied to cancer of the uterus, especially of its lower segment, I believe it to be the operation of the future, and in my description of it, as given in the fourth volume of the *System of Surgery*, edited by Dennis, I have treated it from this standpoint.

In cancer the essence of the operation is not only to secure the vessel but to free the ureter.

The procedure which secures the vessel is the same for all cases. We add certain steps in the event of cancer. Taken as a whole, the operation is not particularly difficult, except in fat subjects.

The Operation.—Ligate and separate the ovarian vessels and round ligaments as in any other hysterectomy. Lift up and open the cut surface of the broad ligament at the sides of the pelvis. Draw back

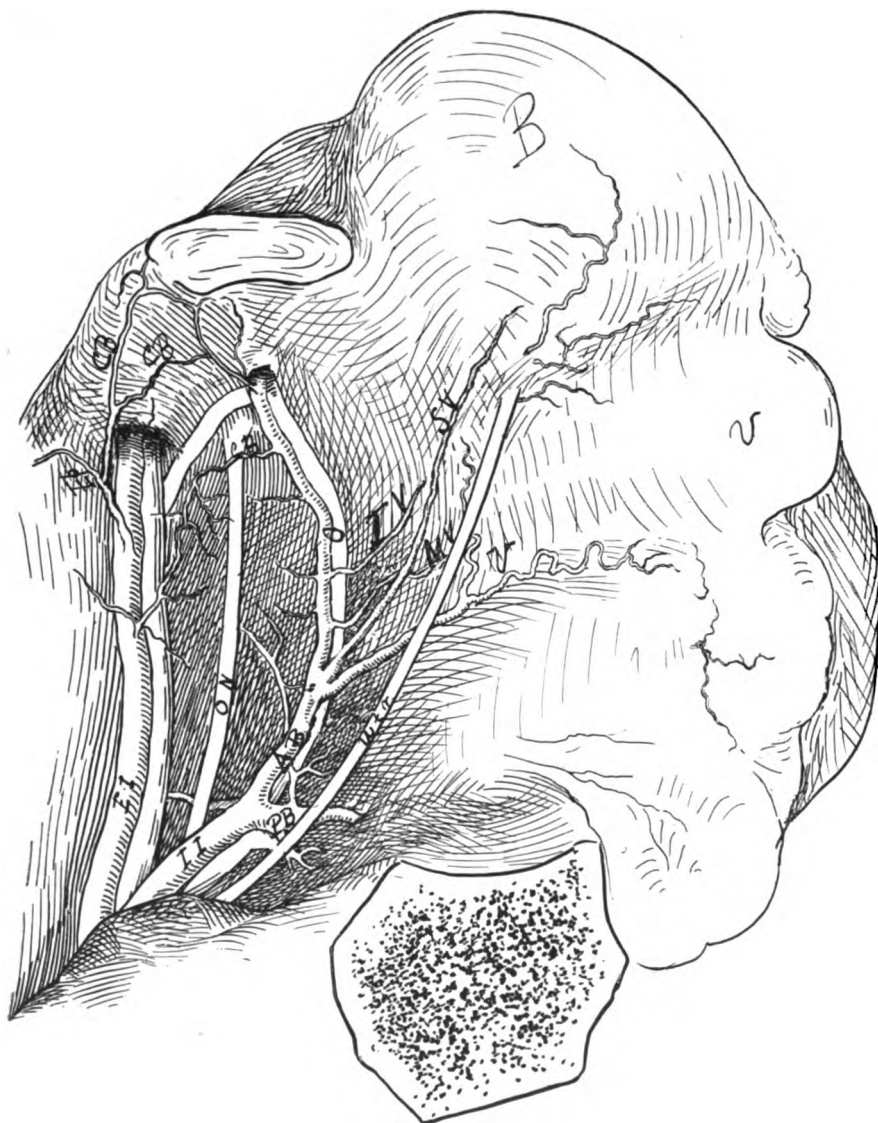


FIG. 1.—Showing structures on left pelvic wall. Bladder, *B*, and uterus, *U*, separated and turned aside to the right. *Utr.*, ureter. *U*, uterine artery. *SV*, *IV*, *MV*, are the superior, inferior, and middle vesical arteries, the two latter branches of the obturator, *O*. *AB*, *IB*, external iliac vessels. *AI*, internal iliac. *AB*, anterior, and *IB*, posterior branches of the internal iliac. *ON*, obturator nerve. *Ep*, epigastric artery. *CB*, communicating branches between external iliac system and obturator.



FIG. 2.—Showing uterus, U, bladder, B, ovary, O, tube, T, with anterior layer of broad ligament all turned forward and to the left. R, rectum cut away from vagina. V, below Douglas' cul-de-sac, to show MH, middle hæmorrhoidal, with its vaginal and uterine branches. CB, communicating branches. Utr, ureter. U, uterine artery, with origin of superior vesicle, showing between it and OA, obturator artery. AB, anterior trunk. PB, posterior trunk of IL, internal iliac artery. ON, obturator nerve.

the posterior position of this cut surface, then with the finger and handle of a scalpel separate the peritonæum from the pelvic wall ; this brings one to the internal iliac artery. Follow it, if need be, by touch, to its bifurcation ; separate and isolate the anterior trunk, and tie it. In about one fourth of all the cases the obturator artery gives off the uterine as well as the middle and inferior vesical arteries, and when such is the case, the obturator springs from the posterior trunk ; but it runs directly forward just below the anterior trunk and its vesical branch, the superior vesical, and can be included in the same ligation with the anterior trunk. One can ascertain this divergence from the normal by tracing the uterine artery. All the vessels named are easily isolated, and if one confines himself to the use of the finger and the handle of the scalpel in this isolation, there is no danger of wounding a vein. As soon as the ligation is completed the operator proceeds to the removal of the uterus. In fibroids and in pregnancy this consists of separation of the bladder and amputation at the utero-vaginal junction. If there be bleeding from the posterior wall—something not likely to occur when the vagina is cut off at its junction with the uterus—bleeding points must be tied separately. The subsequent condition of the operation is in accordance with that employed in all cases of complete hysterectomy.

If the operation has been undertaken for cancer, the following course is to be adopted after ligation of the vessels : The ureter is to be dissected from its place in the broad ligament.

This is accomplished in one of two ways, as the operator may elect. One method is as follows : Pass a director beneath the peritonæum at the pelvic brim, as far back as the bifurcation of the common iliac artery ; turn back the lower flap, and the ureter will be found as it emerges from the pelvis ; it is easily recognized and can be readily isolated. Having once found it, it is to be carefully dissected from its bed as far down as its entrance to the bladder. This dissection must be made upon a director, which is worked into place above the ureter, the latter being held taut to outline its course. Another method is to first locate the ureters at their junction with the bladder. This is accomplished by carefully separating the bladder from the vagina until the ureters come in sight. When found, they are then dissected from their bed in the same manner as when approached first from above. The ureters are now held aside while the uterus and as much of the vagina as is necessary are removed. After this has been done all infected tissue at the floor of the pelvis in the broad ligaments and at the pelvic wall is removed. Bleeding points on the

posterior vaginal wall are ligated, the ureters are replaced, and then the cut edges of the peritonæum are approximated from before backward in such fashion as to cover in and separate from the general peritoneal cavity all the denuded surfaces. Drainage is accomplished by gauze placed beneath this covering of peritonæum, as is done in complete hysterectomy, the gauze passing out through the vagina. I have not resorted to prior catheterization of the ureters in my cases, finding that I could dispense with it. The time needed to isolate the ureters will prolong the operation to something like an hour and twenty or thirty minutes, but when completed it promises most satisfactory results.

ECTOPIC GESTATION.*

BY W. GILL WYLIE, M. D.

When the President asked me to read a short paper on ectopic gestation I agreed, for I knew that little would be needed after Dr. Mann had read his paper.

I will do little more than give you a report of four or five of the more interesting cases that have occurred within the last four or five months in my private practice and clinic at Bellevue. Since November 18, 1895. I have had five cases of ectopic gestation in my private practice, four in my sanatorium, and one outside that I have operated on, and four in my service at Bellevue. Three were cases of large hæmatocele complicated by sepsis; the latter were operated on from the vagina, emptied out, and drained. All have recovered. This is a large number to find in so short a time; but as I grow more expert in diagnosis, and my practical knowledge of the subject increases, the relative percentage seems to increase, and some years it seems to show up in about five per cent. of all cœliotomies. Then I have other cases in which I can only account for the symptoms, where I do not feel justified in operating, except by diagnosing probable extra-uterine pregnancy, causing hæmorrhage and local pain—not enough hæmorrhage to greatly weaken the patient or cause a large mass or tumor to develop in the broad ligament. The real difficulty is to make an early diagnosis. In uncomplicated cases,

* Read before the New York Obstetrical Society, April 21, 1896.

when there is no hæmorrhage from the fimbriated extremity in the early weeks of ectopic gestation, or rupture of the tube before the second month, if one gets a chance to examine under these conditions, a diagnosis is not difficult. If the mass on the side of the uterus is as large as an orange the indication and justification for cœliotomy is plain whatever the tumor may be, and an exact diagnosis is not important.

In all cases where there are any signs of dangerous hæmorrhage going on in the pelvis little time should be lost in trying to make a clear diagnosis, and the old "shilly-shally" delay to get your patient over the shock by stimulants, time to rally, etc., is intolerable. When hæmorrhage is going on inside, proceed to open the belly at once and, let some one else give hot saline rectal enemata and hypodermatic injection at the same time, while you get in and tie the bleeding vessels before the case is hopeless. Where the child is viable and beyond the fourth month, one may be justified in waiting and watching till after the eighth month, so as to save the child and mother both by an operation.

Ten or twelve years ago, and even six or eight years ago, I have known the time in this Society when I was almost alone in my advocacy in favor of laparotomy as soon as an ectopic gestation could be diagnosed, and I have always opposed the use of electricity. To-day there is no one to speak against cœliotomy, and I doubt if many will ever again use electricity in ectopic gestation.

The real difficulty is in making a satisfactory diagnosis in ectopic gestation before hæmorrhage endangers life.

The belief, so commonly stated and so generally accepted in the past and still held by many, that in tubal pregnancy hæmorrhage is not at all likely to occur until after the end of the second or well in the third month is wrong, and the chief motive in my being here to-night is to report in detail several cases demonstrating the fact that hæmorrhage frequently occurs very early in tubal pregnancy, and may be very troublesome, if not dangerous to life.

November 17, 1895, I was called to see Mrs. K., aged twenty. She had been married about six weeks. Before marriage she had always been well; menstruated regularly without pain, normal in amount, and lasting four days. Her last menses (October 25th) came on about as usual, but three days after menses ceased there was some pain, especially on the left side, and a slight flow began and has continued most of the time for the last three weeks. At times the flow is quite free. She has kept quiet, and lately in bed. Has had no

fever and the pain has not been very severe. At times she has felt faint and weak, but has not had regular morning sickness. On local examination, I found the uterus soft, somewhat enlarged, and lying back in the pelvis. In front of the uterus and a little to the right side of the median line I could feel what appeared to be the enlarged body of the uterus flexed forward, but the mass was large enough for a two and a half months' pregnancy. I could not trace out the direct connection of the softened cervix, as the upper part of the cervix lay well back in the pelvis. On the left side I could not define a tumor, but the broad ligament felt full and resisting. The patient, although giving a history of having enjoyed good health, was a frail and delicate little blonde, and had lost enough blood to give her a small pulse and very pale face. I advised examination under ether, and to be ready for either a curetting or any operation that might be indicated. I told the mother that it might be a serious case, as I suspected extra-uterine pregnancy, and wished to have the patient at my sanatorium. All arrangements were made to have her moved. Later her mother became alarmed and sent for her family doctor, who examined the patient and said he did not think operation necessary. Fortunately, I was in the neighborhood, and as the patient had not kept the appointment, I thought a severe hæmorrhage might have occurred, and on entering the house met the doctor. After explaining my views of the case, Dr. Mendleson readily agreed to my plans. The next morning (November 19th) I had the patient etherized, and I could easily make out that the mass in front and to the right side was a tumor separated from the uterus, which was enlarged, softened, and pushed back in the pelvis, and that the right tube and ovary were not normal. The uterus was then curetted, but nothing more than some soft shreddy tissue was found. The abdomen was then opened in the median line, and, as the peritonæum was incised, black clots of blood were found scattered among the intestines, and a mass of loose black clots about the left tube and ovary. There was hæmorrhage going on at the time, apparently from the fimbriated extremity of the tube. The tube was enlarged, and about its center was distended by a dark mass about the size of a big chestnut.

The right tube was normal, but the left ovary was a small ovarian cyst the size of a large lemon. Both tubes and ovaries were tied off, the abdomen cleared of clots, and the wound closed. The patient made an uninterrupted recovery, and has been in good health since. We thought of leaving the left ovary and the right tube, but decided

not to make the experiment on so frail a subject. The uterus was left, as it was healthy, and the patient young and married.

I can not claim that I made a positive diagnosis of ectopic gestation in this case, but my suspicions were strong, and the presence of the small ovarian tumor gave me the needed evidence sufficient to justify an exploratory incision.

The rupture in the tube occurred during removal. This case plainly demonstrates that serious if not dangerous hæmorrhage may occur before the third month of ectopic gestation.

February 6, 1896, I was called to Brooklyn to see Mrs. B. with Dr. Arthur Paine, of Brooklyn. The following history was given: Aged thirty-three; first married 1884, and had three children; married again 1892, and two years and a half ago had a child; was always healthy; had had no local trouble; menstruated regularly and normally. January 4th a flow came on which was not normal in quantity or color, being scanty; this kept up for a week, and then what appeared to be normal menstruation started up, and she flowed a week. In the midst of the flow she had a severe pain in the right groin and right leg. The pain was severe and lasted three or four days. She felt weak, but had no fever. January 29th she had a violent pain in the right iliac region which lasted five hours, with repeated attacks of faintness.

On February 5th flow began again, and the pain returned in her side and leg. Had no fever. After listening to Dr. Paine relate the case as above, I said it looks like an extra-uterine pregnancy, and if I find any mass on the right side, it will be a case for exploratory incision. The basis of my opinion was: a healthy woman, with no history of local disease, irregular menstruation, sudden and severe local pain over one Fallopian tube; and *no fever*. Return of pain and flow without fever. Faintness and local pain on one side and no fever. On examination, I found a softened uterus, with a distinct rounded tumor about the size of a lemon on the right side and some abnormal fullness and tenderness of that broad ligament.

The patient was brought to my sanatorium, and the next morning the abdomen was opened. There were free clots in the abdomen and pelvis, with a mass of black clots about the right tube and ovary. There was free hæmorrhage apparently coming from the fimbriated extremity, and the tube was distended with a dark-bluish mass. The right tube and ovary were removed. The clots cleared out of the pelvis and abdomen. The left tube and ovary and uterus seemed normal, and were not removed. The abdomen was closed without

drainage. The patient recovered without rise of temperature, and has been perfectly well since.

The small cyst of the right side was not in this case a true ovarian cystoma, but was of material service in enabling me to confirm my diagnosis of ectopic gestation, and justified an exploratory incision.

This case was easily diagnosed, and the little cyst of the ovary made it easy to confirm. In this specimen the tube is not ruptured, and as the amount of blood was considerable, it demonstrates that early hæmorrhage from the fimbriated extremity of the tube may be dangerous.

March 19, 1896, Dr. J. Kelley sent me Mrs. D., aged thirty-three; married sixteen years; has had four children, the last one five years ago. Has had one miscarriage; menstruation has always been regular till last December it failed to come. In January, at the regular time, or a little later, she thinks she had a miscarriage; since then she has had a constant slight flow. She has had some pain on the left side and felt weak and faint, but looks fairly well; no fever. I made a simple examination and found the uterus enlarged, and marked fullness and tenderness, especially on the left side. I sent her at once to my sanatorium to get ready for taking ether, as I expected to curette to stop the flow. When I examined her under ether I found a large, soft mass the size of a large orange in the left broad ligament, and nothing in the uterus except shreds. I then diagnosed probable ectopic gestation, and not being well prepared to do a laparotomy, and as her condition was excellent, I decided to let her come out of ether, notify her husband and Dr. Kelly of my diagnosis. Early the next day she was again etherized and the abdomen opened. The abdominal cavity contained many large black clots. The left Fallopian tube was distended to the size of a good-sized sausage, and when pulled up had a rupture in it. The ovary contained a good-sized cyst, and was buried in old clots of blood. The left tube and ovary were tied off and removed, and the right was normal and was not disturbed. The abdomen was carefully cleaned of all clots that could be found and closed without drainage or washing out. The patient did well for eight days, when she had pain in her right side, with rise of temperature to 101° and the next day 102° and over. On examination, I found a mass the size of an orange on the left and back of the uterus, evidently due to an exudation around a lot of serum that collected and settled there from some old clot not removed at the time of operation, and would have been carried off if I had made drainage either by means of a glass tube upward or by

gauze or rubber by the vagina. The temperature fell, and the exudation was absorbed, and she left the hospital in the fourth week in good condition. Had the sepsis been more decided, an abscess would have formed, or septic peritonitis might have resulted and caused death. It proves that drainage, as a rule, is safer than trusting to getting out all material liable to result in sepsis in such a case. Had the symptoms grown more serious I was ready in this case to open the *cul-de-sac* and empty the fluid and drain.

When the abdomen was opened, dense adhesions were found in the pelvis. About the right tube was a large mass of clots, and the tube was distended with a dark mass the size of a lemon. This mass lay up in front on top of the bladder. The left ovary was the seat of a small tumor about the size of a lemon. There were no signs of pus, but there were adhesions about the right side that involved the vermiform appendix, necessitating removal by ligature. The uterus, both tubes, and ovaries were removed completely, and gauze drainage and rubber tube left in the vagina. The patient made a complete recovery. There was a slight rise of temperature for a day or two. No diagnosis was made until under ether, and salpingitis or extra-uterine pregnancy was mentioned. The cyst on the opposite side again helped us.

December 5, 1895, I found ready for operation at my clinic Mrs. F., aged twenty-six; married; always healthy till after the birth of a child nine years ago. Since then she has had three miscarriages. After the last one, four years, ago she was in my clinic and was curetted, and the cervix and perinæum sewed up. She was well till last year, when she again had hæmorrhages and was curetted. This relieved her, and she was well until five weeks ago, when she had severe pain on her right side and began to flow. At first the flow was very free, and she has had more or less bloody discharge since. The patient was etherized, and on examination I found a softened uterus well back in the pelvis. On the left side was a small cystic tumor the size of a lemon. On the right was an enlarged tube and fullness of the tissues of the broad ligament anteriorly.

THE CHOICE OF OPERATION IN ECTOPIC
GESTATION.*

BY MATTHEW D. MANN, A. M., M. D.,

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Within the last few months two cases have presented themselves in my service at the Buffalo General Hospital, presenting many symptoms in common. The diagnosis of ectopic gestation was made in each case, and in each operation followed. The method of operating in the two cases was widely different, and the results also differed entirely. It is my purpose, after relating these two cases, to discuss very briefly the question of operation, particularly as regards the choice of method. A good deal of interest has been excited in this question of late, and, with the advent of the vaginal methods, we must try to lay down some rules which will enable us to decide whether in a given case the abdominal or the vaginal operation should be done.

CASE I.—Mrs. K., admitted into the hospital January 14, 1896. She was thirty-four years of age and married; had borne one child. She had always been regular in her menstruation until four months before, since which time there had been no flow. About three months before coming to the hospital she began to have a great deal of pain in the abdomen, especially in the region of the pelvis. A distention had gradually come on, and she had become more and more helpless, until, finally, although able to walk, she was utterly unable to attend to her household duties. There was slight rise of temperature, fair appetite, constipation; bladder and urinary secretion normal.

Physical examination showed a lacerated perinæum, enlarged cervix, and relaxed vagina. The uterus also seemed to be enlarged, and was pressed forward by some foreign material in the pelvis. Above, by bimanual palpation, the whole pelvis was found to be filled with a large exudation reaching up above the brim of the pelvis. In consistence the mass was firm but not hard. Diagnosis was made of hæmatocele, probably due to ruptured tubal pregnancy.

After watching the patient for a few days an operation was deter-

* Read, by invitation, before the New York Obstetrical Society, April 21, 1896.

mined upon. The abdomen was opened, and, after the escape of a large quantity of straw-colored ascitic fluid, I came upon a distinct membrane which seemed to cover the effused blood, making a sac which completely filled the pelvis. This was gently torn loose from its adhesions, and, finally, I was able to raise it out of the pelvis. It broke, and a great quantity of clots and fluid blood escaped, together with a fœtus of perhaps three months. On tracing this membrane to its point of origin I found that it seemed to be the peritonæum making up the posterior fold of the broad ligament. When all gathered up, there seemed to be almost a pedicle attached to the back wall of the ligament just where the protrusion had occurred. In other words, there had been a rupture into the broad ligament; this ligament had been distended, and the posterior wall had made a sac which had contained all of the blood effused. There was no blood and no clots anywhere free within the peritoneal cavity. Having cleaned out the broad ligament thoroughly of all clots, I tied off and cut away the remains of the sac, much as one would treat an ovarian cyst. The opening into the broad ligament was about an inch in diameter. The abdominal cavity was irrigated and a glass drainage-tube introduced.

The patient made a prompt recovery. At the end of about two and a half weeks I closed the perinæum, and she was discharged cured just one month from the date of the first operation.

CASE II.—The second case was a married woman, thirty-five years of age, who had had two children. Two years before coming to the hospital she noticed a swelling in the lower abdomen, which was followed by severe pain. She was then quite sick, and kept her bed for some time, but gradually recovered. Since that time she had been pretty well. On coming to the hospital she reported that there had been no menstrual flow for four months. (She was a Pole, and could speak very little English.) The breasts contained milk; an examination showed the uterus to be very large and pushed up in front by a large exudate in the pelvis behind. This was large enough to reach considerably above the true pelvis, and resembled the previous case almost exactly. The patient's temperature was 100.5° ; she was exceedingly nervous, and suffered greatly from continuous pain in the pelvis and frequent painful urination. There was a slight trace of albumin in the urine. Diagnosis was made of hæmatocele due to ruptured tubal pregnancy.

As my attention had just been called to the vaginal method of operating on these cases, I determined to try it. Therefore, on the sixth day after admission, her general condition having somewhat improved

and temperature become normal, I made an incision behind the uterus at right angles to the long axis of the vagina. Immediately there was an escape of blood and clots and a foetus. I introduced my fingers and dislodged a large quantity of clots and some placenta. This procedure was followed by a very severe loss of blood. I continued, however, to clean out the cavity, and, having washed it out thoroughly with very hot water, packed it with gauze. This was done very quickly and hurriedly, as the loss of blood was enormous. By the time the patient was placed in bed she was pulseless, but, under the use of stimulants and an intravenous injection of salt solution, the pulse revived, and she did fair to do well. Two hours later she sank and died, without any notice of her condition having been sent me.

A post-mortem examination was made, and the specimen which I show you to-night was obtained. The entire pelvic contents were removed. On opening the sac, a small tumor was observed near the right horn of the uterus. It was almost as hard as a fibroid. On cutting it open, its contents were found to consist of inspissated clots with another foetus about the same size as the one first removed. Evidently this was the product of a previous extra-uterine pregnancy, which probably had occurred at the time she was sick two years before. What was the cause of the hæmorrhage I have not been able to determine; the blood seemed to be arterial, and came away in a furious stream. Perhaps it came from broken placental attachments.

A comparison of the results in these two cases certainly is not in favor of the vaginal method of operating. The question will at once be raised, Would the result have been better in this second case had the abdominal method been employed? Examination of the specimen will show that it is not likely that the sac could have been enucleated, as was done in the first case. I have not had the opportunity of dissecting the specimen very fully, but the adhesions seemed to be of the densest kind, and perhaps the only thing that could have been done would have been to have made an opening into the sac and emptied its contents from above. It is altogether likely that in this way, by aid of the Trendelenburg position, the bleeding points could have been better seized and the hæmorrhage more successfully controlled than was possible from below. After clearing out this sac from above, two methods might have been employed: either drainage, secured by an opening into the vagina through the sac, or the sac might have been sewed to the abdominal wound—marsupialization, as the French call it—and packed and drained from above. Either method might have given a good result.

Manifestly, it is not fair to base a conclusion on a single case. I therefore have taken some pains to look up recent reports to see if there have been any other similar results. In the *Annales de Gynécologie* for February, 1896, is a report of a discussion before the French Surgical Society on this very subject.

In this discussion many cases are reported and various opinions expressed. The results show that where the case is somewhat recent, the accident which I met with is not unlikely. Several cases were reported where a serious hæmorrhage in a vaginal operation compelled the removal of the uterus in order to save the woman. Our President, Dr. Coe, informs me that he has had a similar case.

Now, a considerable experience in the abdominal method has led me to believe that hæmorrhage can always be controlled from above. I have operated about twenty times for extra-uterine pregnancy by the abdomen, and have not lost a single case, although in several of them there was more or less severe hæmorrhage.

In the discussion that I have mentioned the participants seem to divide extra-uterine pregnancy into two classes—before and after the fifth month. The earlier cases are the only ones which I propose to consider, and it seems to me that we can formulate the treatment somewhat in this way: If the extra-uterine pregnancy be discovered before rupture has taken place and operation be decided upon, then cœliotomy must be done, following the general rule that the vaginal method is not usually applicable to unilateral disease of the appendages. If rupture has taken place, followed by severe hæmorrhage, and an operation is urgent or necessary, the abdominal method should be used, because in this way alone can we be sure of getting at the bleeding points.

A few cases have occurred in my practice where, after an intra-peritoneal hæmorrhage from rupture, there has been a failure on the part of the peritonæum to shut off or inclose the blood by adhesions, but it has remained unabsorbed until suppuration took place. Such a case could only be properly treated by cœliotomy, irrigation, and drainage.

There remains practically but one other class: cases where the hæmorrhage has ceased and the effused blood is circumscribed by pseudo-membrane and adhesions, or by a peritoneal covering forming a so-called hæmatocele. If this hæmatocele be of long standing, and is evidently being absorbed, we can well afford to do nothing. If it has begun to undergo suppuration, and is threatening the life of our patient by septicæmia, then it must be opened, cleaned, and

drained at once. I think most of you will agree that this can best be done through the vagina. I have operated in this way a number of times with good results.

The doubtful cases are those which are too old to be recent cases, and too new for the danger of hæmorrhage during the operation to be overlooked. Exactly where to draw the line is the difficulty. The larger the collection of blood, the greater the danger of hæmorrhage. This may be a guide and decide us as to the nature of the operation. Nor must it be forgotten that time is an essential feature in such cases, and that a Fabian policy may be the best.

In both the cases here related the effusion of blood was great. In the fatal case I think it would have been better either to have opened from above or to have waited. This latter plan I might very well have followed, for, although the patient was suffering, she was in no danger—in fact, she improved in the few days preceding the operation. Longer time would have given the woman two chances—either absorption might have begun, or the vascularity of the sac walls might have diminished. As long as suppuration had not occurred, there was little or no danger. Certainly, further hæmorrhage, as long as she was resting in bed, was unlikely.

To sum up, I would suggest as rules for our guidance the following:

1. Before rupture: cœliotomy.
2. Soon after rupture; intraperitoneal hæmorrhage: cœliotomy.
3. After rupture; hæmorrhage; no attempt at inclosure; septicæmia: cœliotomy.
4. Encysted hæmatocele, early: cœliotomy; or delay and, later, colpotomy.
5. Encysted hæmatocele, late or with sepsis: colpotomy.

LIABILITY TO PROSECUTION FOR DAMAGES IN ABDOMINAL SURGERY.*

BY CYRUS A. KIRKLEY, M. D., TOLEDO, OHIO.

However the verdict, a suit for damages is a financial as well as professional misfortune. Even the experienced and skillful operator

* Read before the American Gynæcological Society, May 26, 1896.

may be compelled to defend himself against the malicious and greedy, and, on account of the discredit usually thrown upon expert testimony, the truth is not always ascertained, and justice at times may be defeated.

While the moral responsibility is the same in every surgical case, the legal responsibility varies according to the gravity of individual cases and results of treatment ; therefore, when the abdominal surgeon is made defendant in a suit, the claim for damages is not likely to be insignificant.

Priests once assumed to treat the sick, and even to perform surgical operations, their knowledge and power to do so having been regarded as a divine gift; therefore results were accepted whether good or bad. In some countries, as in Egypt, corporal punishment was inflicted upon those who ventured to depart from recognized and well-established surgical rules, though the results were favorable. In others (Roumania) unsuccessful results made the surgeon liable for damages, however skillfully he may have treated the case. In others, again (Goths), if the patient dies, the surgeon is delivered to the relatives and friends, who wreak vengeance upon him. In Germany the surgeon is held strictly accountable in the event of the death of the patient, unless he has exercised due care and taken proper precaution, though he may be incapable or unskillful and the patient may have employed him and agreed to pay him. While the law does not assume that the surgeon agrees to cure, it very properly demands of him reasonable skill and knowledge (Hamilton and others).

Women especially are horrified at the suggestion of a surgical operation, and are naturally averse to it. Exceptionally, however, a woman rather enjoys the prominence given her, regarding herself something of a heroine ; but in rural communities in which operations are only occasional, it is always difficult, sometimes impossible, to get the consent of the patient or her friends at all, she preferring to endure her condition to taking the unavoidable risks of an operation, however slight they may be. Sometimes consent is given conditionally—that is, if unexpected conditions enhancing the risk are encountered, the surgeon must promise to proceed no further. Though uncommon, such an instance is the source of infinite trial and annoyance, and a violation of the promise if unfortunately made, may be the basis of a suit for damages.

Mrs. T., aged thirty-five, of healthy appearance, came under observation in December, 1894. She had never been pregnant, and menstruation had been regular up to October, since which time it had

not reappeared. It began when she was fourteen years old, and had never been excessive. She had slight leucorrhœa.

The abdomen was about as large as at seven months' pregnancy, measuring 35.5 inches in its largest circumference, and due to an abdominal tumor of some kind, of distinct outline, resilient to the touch and movable, but fluctuation could not be detected. The surface of the tumor was smooth and regular, did not dip down into the pelvic cavity, and could not be distinguished from the uterus; it was apparently the uterus itself.

The patient had never been seriously ill and had first noticed the tumor about two years ago, the growth of which had been slow until within the last six months. The attending physician had diagnosed ovarian cystoma. She was informed that though the diagnosis might be correct, there was considerable doubt, which would disappear on opening the abdomen, but should the tumor prove to be an ovarian cyst, there would be less risk in the operation than if any other condition should exist. At this point she insisted that she would take no further risk than that involved in the removal of an ovarian cyst, and would consent to the operation only on condition that if the tumor were found to be other than ovarian the operation should proceed no further. While it is, of course, plain that the operation should have been declined under such restrictions, still there was a probability that before the operation she could be persuaded that her greater safety would depend upon permitting the operator to use his best judgment and to do whatever seemed best under the circumstances. There was a slight hope, too, that the tumor might be ovarian. All persuasion, however, was unavailing, and the operation was undertaken only as an exploration, still with the hope that the husband would allow to be done whatever might seem best. An explorative operation was performed December 24, 1894, revealing an œdematous myoma. The husband, who was in another room, was informed of the result and of the favorable prospect for recovery should the operation proceed, but he absolutely refused to permit anything further to be done. Had the operation proceeded without consulting the husband and the patient recovered, all would have been well; had the result been fatal, however, the avenue to a suit for damages would have been open and would probably have been speedily entered. The tumor could have been easily removed with but little greater risk, and the patient no doubt would have recovered as well from a completed as she did from the explorative operation. The course pursued in this case was in deference to

the judgment of the patient's physician, who was assisting in the operation.

In contemplation of an operation, an understanding can usually be had with the patient and friends; exceptionally, however, contingencies may arise making it impracticable, even impossible, to do so. The question arises whether under such circumstances an urgent operation should be undertaken with all the attendant risks.

The following is a recent experience: Patient thirty-nine years old, mother of one child born twenty years ago. The uterus was displaced backward, partially fixed, and very tender to the touch. It was considerably enlarged, and there was a profuse muco-purulent discharge from its cavity. The general condition was fair, though the accompanying symptoms of chronic endometritis were present in a marked degree. Examination under anæsthesia failed to reveal either disease of the ovaries or tubes, both being of normal size. Curettage, irrigation, and drainage was the treatment employed. Not an unpleasant symptom arose until the morning of the ninth day. About nine o'clock, having just eaten her breakfast, the patient was suddenly seized with violent and excruciating pain in the region of the left ovary. She was seen within an hour after the onset of the attack, and though the nurse had given a quarter of a grain of morphine hypodermically and an ounce or more of whisky, she was almost in collapse. The countenance was anxious, nose pinched, lips livid, temperature 99° , and pulse 134, small and weak. There was not the slightest distention of the abdomen, but it was extremely sensitive over its entire surface. Vaginal examination gave negative results. Evidently some terrible accident had happened within the abdomen, and the indications for immediate abdominal section were perfectly plain. When consultants arrived within about two hours after the onset of pain the symptoms were less urgent, and it was concluded that the chances for recovery would be better without immediate resort to operation. Improvement, though slight, continued throughout the day, but there was recurrence of pain, and symptoms of collapse came on about 9 P. M. The patient gradually grew worse until the following night, when she died.

After much coaxing, the husband finally consented to a post-mortem examination, which was confined to the abdominal and pelvic cavities. The peritoneal cavity contained about half a pint of pus. The right tube and ovary were normal. The left tube was normal, but the ovary, though of normal size, had ruptured along its convex border, the rupture no doubt occurring at the onset of pain. The tunic

was easily torn, and was as thin as peritonæum. Whether the ovary had undergone cystic or purulent degeneration, its contents had been sufficiently irritating to produce a rapidly fatal peritonitis. When the patient had been examined under anæsthesia, this diseased ovary could be distinctly made out, and appeared as healthy as the other.

During the first two hours after the onset of pain abdominal section might have been done; but the husband and friends were in a distant town, assistants were not at hand, and the patient was too ill to talk or to be consulted. Skilled nurses, however, were at hand, and the operation could have been readily done, and perhaps should have been done, notwithstanding all the attendant risks.

When the attack of pain again came on, however, death was inevitable.

The average jurymen place the same estimate upon expert as upon any other testimony. One is of equal value with the other. The function of the witness is to testify in behalf of the side calling him. He is supposed to be biased in favor of that side. If an expert, he is paid for his testimony. Parties to a suit select a witness with reference to his ability to strengthen their respective sides, and if an expert, they regard him in much the same light as the juror. He is expected to testify in their behalf. Courts, too, are inclined to underestimate the value of expert testimony. Lord Campbell has said that "skilled witnesses come with such a bias on their minds to support the cause in which they are embarked that hardly any weight should be given to their evidence." There is much need of reform in this direction. An expert witness should be considered as such only when he is known to possess special qualifications, and to have had sufficient experience to entitle his opinion to some weight. A chemist can not give reliable evidence in a surgical case, neither can a surgeon give valuable evidence in questions pertaining to general medicine. Instead of his selection on such a basis, his opinion as to the case in question is first sought, and, unless it strengthens that side or weakens the other, his evidence is not desirable. So-called experts are known to have been called because they would testify to anything desired.

An attorney was recently asked if a certain witness knew anything on the subject in question. He replied that "he was not called on that account." Until the time comes when courts shall fix the proper status for medical witnesses demoralization will exist. "As the law is administered, many persons can be found who are ready to arrogate knowledge and position they do not deserve. The dignified alienist of

experience and reputation is confronted by the impostor whose glib manner and bizarre 'popular science' sometimes impresses the susceptible jurymen, as does the proprietary-medicine advertisement, and whose experience of medicine and its exponents is confined to the quack or cure-all. The law is largely responsible for this" (Hamilton).

In any case the sympathies of a jury govern them largely in determining a verdict. Sympathy that overcomes judgment and ignorance generally go hand in hand. The jury naturally incline toward the side most in need of a favorable verdict, sometimes with little regard as to the merits of a case. It is a well-recognized fact that in suits against corporations the verdict is generally adverse.

The following interesting case recently came before the Common Pleas Court of Lucas County, Ohio. The surgeon was threatened with a suit for twenty thousand dollars damages, whereupon he immediately sued for the balance of his fee, a part having been paid. The defense set up a counter claim for three thousand dollars, in which was included hospital expenses, loss of time, etc. Furthermore, it was alleged that the operation was unnecessary, and, though the patient recovered from it, a broken-down nervous system, a ventral hernia, and a damaged eye resulted. The main points in the clinical history are as follows, and were kindly given by the surgeon himself: In August, 1893, tubal pregnancy of the right side was diagnosed. In January (1894) following he doubted the correctness of his diagnosis. Motion was felt in February, and was also detected by palpation. The enlargement was mainly on the right side. The uterine sound had been introduced in October and again in December, and the uterus found empty. Abdominal section was performed March 15, 1894—*nine months to a day from the last menstruation*. On opening the abdomen, the foetal mass could be distinguished from the uterus, which was about as large as at a six months' normal pregnancy. At this stage of the operation *tubo-uterine pregnancy* was diagnosed, and delivery by the vaginal route determined upon. The uterine cervix was dilated to the capacity of a Goodell's dilator, and dilatation completed by the hand. The uterus was found to be empty. The septum—consisting of the uterine wall—between the uterine cavity and the foetal mass was torn through and the foetus easily extracted. The placenta almost immediately followed, with scarcely any hæmorrhage at all. The foetus was about as large as at six months—about sixteen inches in length though not well developed. The placenta, though small, was of normal appearance. To prevent the possibility of sub-

sequent pregnancy, the ovaries and tubes, though normal, were removed. There was no lochial discharge until the ninth day, when it appeared, green in color, acrid and offensive. The claim for damages was based upon the allegation that an imposition had been practiced; that instead of a tubo-uterine the case was one of normal pregnancy, which the operator should have known, and that, in addition, the accidents following the operation, together with the shock and prolonged convalescence, had made the woman a physical wreck. After the trial had gone on for two or three days a compromise was brought about and the case dismissed.

Whatever may have been the merits of this case, the verdict would almost certainly have been in favor of the defendant. From the jurymen's standpoint, a frail, nervous, and mutilated woman was entitled to whatever damage she could get.

The difficulty of bringing out the truth by the usual method of examining witnesses, and the improbability of its recognition by the jury, could hardly have been made more apparent than in this case.

It is a curious fact that each attorney brought out exactly the desired answers from the same witness. In stating a hypothetical case, counsel would, of course, make it favorable to his side, and put his questions accordingly, expecting and usually getting a favorable reply. Expert testimony is in this way often made to appear inconsistent, and medical witnesses are compelled to disagree when opposite hypothetical questions are put to them. To this method of examining witnesses, perhaps more than to anything else, is due the disrepute of expert medical evidence. Instead of the witness giving facts, by this very method he becomes more or less of a partisan.

"The hypothetical question is supposed to embody the facts of the case, but in reality is often distorted, disingenuous, and is roughly handled and more or less emasculated before the witness is allowed to pass judgment upon it. When the answer is given, the medical gentleman in the witness chair is obliged to consider section by section, and an attempt is made to elicit a categorical answer, which is often impossible" (Hamilton).

Speaking of the plans for reform in calling expert witnesses, Mr. Lawrence Godkin, in his contribution to Hamilton's work, says that "the plan suggested by Sir James Fitzjames Stephen in his *History of the Criminal Law of England* would seem to meet the situation, although it is one which requires a very high standard of medical honor and knowledge. Under this plan, which he says has existed for some time at Leeds, England, medical men refuse to testify with-

out conference with the expert witnesses to be called on the other side of the case, and that as a result medical witnesses are rarely cross-examined at all, and not unfrequently they are called on one side only. He further says "that if such a system could be adopted by the profession in America it would be of immense service in raising the standard of expert testimony and increasing the reliance placed upon it by the courts and juries." He still further suggests that the adoption of such a plan by the medical profession would solve the problem. "And not its least merit lies in the fact that it may thus be brought about by the members of the profession taking the matter into their own hands and dealing with it upon the lofty and disinterested plane upon which the medical profession should be moving on to the great future which, as an instrumentality for the attainment of righteousness and justice, as well as the retarder of death and the alleviator of human suffering, is surely before it."

Mr. Clarence Brown, of Toledo, who was plaintiff's counsel in the foregoing case, and whose legal qualifications and experience entitles his opinion to great weight, was asked the following question: Would a surgeon be liable for damages should he open the abdomen in an urgent case—one certain to die without it—were it impossible to get the consent of husband or friends?

Mr. Brown kindly wrote his reply, received when this paper was nearly completed, and which I have much pleasure in giving in full as follows:

May 13, 1896.

MY DEAR DOCTOR: Only a very general answer can be given to your question as to whether a surgeon would be liable for damages should he open the abdomen in an urgent case—one certain to die without it—were it impossible to get the consent of husband or friends. The surgeon is held to the exercise of ordinary care in the performance of an operation. Ordinary care in such matters, of course, means such care as one ordinarily educated and skilled in his profession exercises under like circumstances, having in mind always the dangerous character of the operation. The degree of care required is always enhanced by the hazardous character of the operation to be performed. A surgeon does not guarantee success or recovery. He is bound to act in good faith. He is required to be competent and skillful. He must use those means and resort to those remedies and operations which the best intelligence of the profession adopt as proper under the circumstances.

The placing of a patient under the care of a physician and surgeon implies an authority in the surgeon to do that which is reasonably necessary in the case ; and if, in the honest judgment of an experienced and competent surgeon, such an operation were necessary, and a proper regard for the chances of the patient required that it be performed speedily and before opportunity for conference with, or obtaining consent from, the relatives or friends, I think a surgeon would not be liable for damages should he perform the operation in an urgent case such as you mention, even although it might result unsuccessfully.

Concerning the other matters suggested in your letter, I do not know that I can speak with any great definiteness without knowing the general character and scope of your paper. I am clearly of the opinion that the present method of calling expert medical witnesses on either side of a case involving a medical question does not materially tend to the elucidation of the truth upon that question in a public trial. In any important case of that character the medical question involved is usually one of such difficulty and importance that reputable physicians might well differ in regard thereto, even were they reliably advised as to the exact facts and history of the case. It is apparent, therefore, that where medical witnesses must be called to testify in response to hypothetical questions framed upon any theory of the facts which the testimony of either party tends to establish, reconciliation of opposing views of medical witnesses becomes an impossibility.

Not only that, but accordingly as questions may be framed by skillful counsel upon one side or the other, the same witness may appear in the attitude of having given directly conflicting views on what appears to the inexperienced to be practically the same hypothetical case.

The medical question involved in such a case is often one upon which even an experienced and skillful physician could not venture an opinion without the most careful investigation into the history, condition, and treatment of the case. How much less, then, could it be expected that a jury, uneducated in the medical profession, unfamiliar with even the medical terms, and incapable, in the limited time and opportunity that is afforded them, of even appreciating the testimony of medical experts—how much less could such a body of men be expected to intelligently pass upon such grave and uncertain problems?

In my opinion, a much better way to try such questions would be

to provide a medical commission, consisting, say, of three reputable and experienced members of the medical profession, to be appointed by the Court, to hear and determine the medical question involved in the case, and, upon their report, let the case proceed to final judgment, according to the usual processes of the law. The distinctions and refinements made in all such inquiries would be appreciated by such a commission. They can not be appreciated nor be made clear by the methods usually adopted in jury trials. With a determination by such a commission of the medical question involved in a case, there would be little difficulty in disposing of the other questions.

Yours very truly, CLARENCE BROWN.

In the miscellaneous department of the *Journal of the American Medical Association* appears an item stating that a case has recently been decided in Brussels as to whether the husband's consent to an operation is indispensable. Two prominent surgeons had been prosecuted by the husband whose wife died from an operation unauthorized either by himself or his wife. The verdict was in favor of the surgeons.

DOUBLE OVARIOTOMY FOLLOWED BY PREGNANCY AND DELIVERY AT TERM.*

BY R. STANSBURY SUTTON, M. D., PITTSBURG, PA.

On October 18, 1892, Mrs. J. R. P., of Beaver Falls, Pa., aged twenty-eight years, was admitted to my private hospital on the recommendation of Dr. McCarter, of the same place.

She was greatly emaciated and feeble. Pulse 140. Her abdomen was very large. Diagnosis: ovarian cystomata. A very unfavorable prognosis was given to her husband.

She was married in 1885, at twenty-one years of age. One year later, in 1886, her first child was born at term. Prior to the birth of this child Dr. McCarter had diagnosed an ovarian tumor lying to the right of the uterus. Six years and seven months intervened between the date of this discovery and her admittance to the hospital.

On October 20, 1892, two days after her admittance, I opened her

* Read before the American Gynecological Society, May 27, 1896.

abdomen and removed from the right side a twenty-five pound multilocular ovarian cyst, the pedicle of which I severed with a Paquelin cautery, the ligature on the stump lying close to the horn of the uterus. From the left side I removed a multilocular ovarian cyst weighing six pounds, and the cautery failing to get hot, I severed the pedicle with a pair of scissors; the ligature on this pedicle also lay close to the horn of the uterus. The cavity was sponged dry, and the patient elevated to the Trendelenburg posture. The wound was long, the abdominal wall exceedingly thin, and the contents were fully exposed. The uterus was somewhat larger than normal, the pedicle stumps were short, and the ligatures lay close to the uterine cornua. The uterus itself had fallen back in retroversion; the fundus was brought forward to the lower angle of the abdominal wound, and a patch of its peritoneal covering was abraded with the edge of a knife; it was then fixed at the lower angle of the wound with two buried silkworm-gut sutures. The abdominal wound was then closed. The operation had occupied twenty-five minutes. The tumor from the right side contained a large amount of colloid material, and this was characteristic of the one on the left side.

To repeat, this operation was done on the 20th of October, 1892. On the 10th of June, 1894, she gave birth to a male child weighing ten and a half pounds. This child is still living, and is one of my numerous namesakes. Again, on the 25th of February, 1896, she was delivered of a healthy boy weighing eight pounds. On the 17th of the present month the mother reported herself in excellent health.

With this record of facts concerning this case, it is respectfully submitted.

- I. TWO PREGNANCIES FOLLOWING REMOVAL OF BOTH OVARIES AND TUBES.
- II. TWO PECULIAR CASES OF EXTRA-UTERINE PREGNANCY.
- III. EFFECT OF HYSTERECTOMY UPON THE VAGINA.*

BY S. C. GORDON, M. D., PORTLAND, ME.

Two Cases of Pregnancy following Removal of Both Tubes and Ovaries.

CASE I.—Mrs. A. M. P., aged thirty-six. I have no history of her case prior to her operation, May 27, 1891, when she had both ovaries and tubes removed by a Fellow of this Society, James R. Chadwick. Dr. Chadwick writes me that his notes of the case being mislaid, he can not say whether both ovaries were removed or not. The patient and her husband understand that they were. "She did not menstruate regularly after the operation. Sometimes there would be two or three months between the periods, then regular for two or three months." She became pregnant about June 1, 1894, and was confined February 26, 1895. Since her confinement she has menstruated regularly, beginning two months after. She is now better than for several years before her confinement.

CASE II.—Mrs. R., aged thirty-three, had been an invalid for several years before operation—unable to do any kind of labor. For a year previous had been confined to bed nearly all the time. Standing on her feet was attended with heavy weight in the pelvis and the dragging so characteristic of varicose veins of the broad ligaments and pelvic organs. Curettement and perinæorrhaphy gave some relief, but failed to restore her to health. Suffered from menorrhagia and much discomfort each month. In March, 1894, I removed both ovaries and tubes, and, so far as I knew, there were no fragments of the ovary left. Each one of them was much enlarged and very flabby, the one on the right side being two inches and a half long and broad in proportion. She recovered promptly, but menstruated regularly each month after two or three months. In June, 1895, she ceased menstruation, and soon discovered she was pregnant. The period of gestation was marked by no peculiar symptoms, and she was delivered of a healthy child March 12, 1896. In each of these cases there

* Read before the American Gynæcological Society, May 26, 1896.

must have been some stroma of ovarian tissue left, but the question of curious interest is, By what means did it reach the uterine cavity? The only explanation is that the tube, after being ligated, must have opened at the stump, thus allowing the ovum to pass through. I have seen the lumen of a varicose vein resume its normal caliber after having been ligated with catgut, absorption having taken place before the coats were destroyed. I presume the same may occur in the Fallopian tube.

*Tubal Pregnancy becoming Abdominal, Fœtus continuing to live ;
Operation at about the End of Fifth Month, Fœtus still Living.*

CASE I.—Dr. G. F. Merrill, of Kennebunkport, called me some time in December, 1893, to see Mrs. B., whom I found suffering from severe general peritonitis, with the following history: About three months previous she passed one menstrual period, but the next month had a slight show of blood, attended with some sharp pain. Six weeks before I saw her she was taken with terrible pain in the lower abdominal region, followed by almost profound collapse and a good deal of hæmorrhage from the vagina, which continued at intervals up to the time I saw her. Severe peritonitis ensued, and a mass of exudate could be detected *per vaginam*. My diagnosis was tubal pregnancy, with rupture at the time of collapse. The condition of the patient and other circumstances seemed to warrant waiting, at least for a while. About six weeks after, she so far recovered that she was moved from her home at Kennebunkport to the Maine General Hospital during my service. Operation was made in the presence of many members of the staff. On opening the peritonæum, a quite large gray tumor came into view. It was apparent through the walls before the section. It lay in the general cavity, but entirely distinct from the Fallopian tube. It was found to contain a fœtus, which gasped several times after removal, and apparently about five months advanced.

The membranes containing the products of conception had evidently escaped from the ruptured Fallopian tube and become attached to the abdominal peritonæum, where life was maintained. Mrs. B. recovered promptly with no serious complications. Both tubes and ovaries were removed, as the inflammatory process had practically destroyed them.

This case undoubtedly belongs to the class so well known as primary tubal pregnancy, becoming abdominal by escaping from the tube and attaching itself to the abdominal peritonæum and viscera,

but I think it is rare in respect to the intensity of the shock, and viability afterward. As a rule, such cases result in the death of the foetus.

CASE II.—Mrs. M., aged thirty-five, mother of three children, last two (twins) born about eight years before she came under my care. Has not been pregnant since. Since September, 1895, she failed to menstruate at the usual time. In October, while away from home, was taken with quite a severe pain, lasting but an hour or two, followed by hæmorrhage from the vagina for one day only. It was profuse for a part of the day, but no severe collapse or exhaustion followed. I think she was confined to the house but one day. On her way to her home from Boston to eastern Maine she stopped at Portland to consult me. I saw her but a few minutes, and, as all hæmorrhage had ceased and she was suffering from no special pain or constitutional symptom, I advised quiet, and if any symptoms developed to inform me. I made no careful examination at the time. During the following two weeks she had some pain and a slight sero-sanguinolent discharge. She came to Portland, and under the influence of ether I found an enlarged tube of the right side, for which I advised abdominal incision. Curetting at this time, one week after, I made an exploratory incision and found a tube very much enlarged by hæmorrhage from the mucous coat, in the center of which was a foetus about six weeks advanced. The hæmorrhage was all within the peritoneal coat, but the tumor made up from the clot was as large as a medium-sized orange. She had salpingitis after the birth of her twins, leaving an infected uterus and appendages. So I made a complete hysterectomy, from which she recovered rapidly and is now in perfect health, a condition not enjoyed for eight years. My experience in this class of cases confirms me in the belief that hysterectomy is always justifiable and demanded.

The peculiarity of this case is in extensive hæmorrhage within the tube, while the peritoneal coat did not rupture.

Effect of Complete Hysterectomy upon the Vagina.

One of the objections to complete hysterectomy that has been urged by the opponents of the operation is that it has a tendency to, and actually does, shorten and deform the vagina. That it also destroys the arch by removing the cervix, which, when left, acts as a sort of keystone. This, if true, would certainly be a very grave objection, and it is only by close observation that we can establish the truth or falsity of it.

In 1892, at the meeting of the American Medical Association, I read a short paper entitled *Hysterectomy without Pedicle*, in which I advocated the complete extirpation of the uterus. In the discussion which followed this paper, and in many of the papers on hysterectomy which have been published since, I frequently find this objection stated. Most operators leave the cervix, closing the peritonæum over it. Practically, Dudley, Goffe, and Baer make the same operation, and, so far as I have consulted authorities, the weight of opinion leans to this method.

Since Jacobs read his paper on vaginal hysterectomy last year before this Society, the "fad" seems to be to make the vaginal operation, and therefore necessarily the cervix is removed. If the same objection holds good as existed against removing the cervix when the abdominal route was chosen, surely these men are doing an immense deal of harm.

In my opinion, there is a much greater objection in this respect to the vaginal operation. To remove the uterus by this route the parts concerned are necessarily put upon the stretch and pulled down to the greatest degree possible, and consequently the tendency is to shorten the vagina after complete closure takes place. By the technique which I have employed in hysterectomy the broad ligaments are constantly drawn up (as soon as cut) by the over-and-over continuous suture. When the operation is completed by this method, the vagina is elevated above the normal position and closed by the same suture continued from the broad ligament. By this simple operation the vagina is actually lengthened by so much as it is drawn up by the suture. That this condition really obtains I have demonstrated by examinations immediately after the operation.

For the past two years I have examined as many cases that I have made this operation upon as I could, and have made inquiries of several of my professional brethren in reference to this point of shortening the vagina.

I have found no case of shortening or other deformity except in two or three cases where the cervix was not removed. I have found a marked atrophy of the vagina, but whether due to the operation or not I am unable to say. So far as I have been able to learn from others, their observations agree with mine. I am therefore led to believe that the objection is one of theory rather than of actual demonstration. I am rather inclined to believe also that the weight of the remaining cervix, in the incomplete operations, has a tendency to prolapsus of the roof of the vagina.

ON THE RELATIVE MERITS OF TOTAL OR PARTIAL
HYSTERECTOMY FOR CANCER OF THE CERVIX
BY ORDINARY METHODS, AND SUPRAVAGINAL
EXCISION BY GALVANO-CAUTERY.*

BY JOHN BYRNE, M. D., LL. D., BROOKLYN.

At a meeting of this Society nearly four years ago, and at which I had the honor to preside, I took occasion to scrutinize the statistics of vaginal hysterectomy for cancer of the cervix. The investigation undertaken at that time had a threefold object—(1) to discover the actual primary mortality from this operation; (2) and, if possible, still more important, the degree of immunity from recurrence of the disease likely to follow such a procedure; and (3) to compare these consecutive results with those which an experience of many years enabled me to accord to supravaginal excision by galvano-cautery.

As to the first line of inquiry, I intimated then and believe now that the question as to primary mortality, though worthy of careful thought and due consideration, was, in the abstract, one of really secondary importance. So far, therefore, from raising any contention on this point with those who, in their enthusiasm for vaginal hysterectomy, have been all along predicting a steadily diminishing primary mortality, no reasonable man should grumble at the naked facts as we then found them, for indeed, on the whole, they seem to me most creditable.

Any impartial observer who may have witnessed a vaginal hysterectomy for whatever condition, and at the hands of the most expert operator, can not have failed to be profoundly impressed with the gravity of the whole proceeding from beginning to end, at least in the vast majority of cases.

Nevertheless, by judicious selection and in competent hands, the extirpation of a cancerous uterus *per vaginam* need not be, and I am sure has not been, followed by a ratio of primary disasters sufficient to exclude such procedure *per se* from the domain of legitimate surgery. On the contrary, the large average proportion of recoveries should be looked upon as but one of the many brilliant triumphs of modern surgery, and one of which any reasonable operator ought to

* Read before the American Gynæcological Society, May 27 1896.

feel proud. Moreover, the vast number of unpublished cases, some of which we must all be cognizant of, but which for obvious reasons have been doomed to oblivion, should not be allowed to enter into the calculation. Because, owing to the publication of flattering statistics during the current decade, so great has been the rage for gynecological adventure that many raw recruits in medicine, eager to jump into notoriety at one bound, have not hesitated to make hysterectomy their maiden effort. Were it not, therefore, for the groundless assumption of those who have been persistently, and I must say wantonly, trying to minimize the difficulties as well as the dangers of these operations by quoting the phenomenal successes of a few favored ones only, the question of primary mortality need hardly be considered.

My analysis of published statistics up to 1892, and the criticism which they elicited, were prompted by a desire not only to explain and correct misleading statements regarding primary mortality, but, if possible, to elicit some grains of *a posteriori* truth touching the ultimate utility of total ablation of the uterus for cancer of the cervix.

A further study of this whole subject has not tended to modify to any extent the conclusions then reached. Indeed, I am fully convinced that the frequent publication of so-called successful hysterectomies, almost to the exclusion of many disastrous reverses, has wrought incalculable evil—so much so that it is doubtful if it were not better for womankind, no less than in a strictly ethical sense, had the statistics of Kaltenberg and Leopold in Germany, and Price and Eastman in this country, never seen the light of day.

Arithmetical statistics in gynecology, as in every department of medicine and surgery, must be viewed in the light of numerous independent yet correlative statements, if not facts, and, in order that they may serve as a useful aid to a proper conception of the whole subject matter, they must be submitted to careful and critical analysis. Not only these said statements or facts, but all leading and relevant phenomena should be plainly set forth, and, when insufficiently explicit in tabulated form, should receive further elucidation in the text or body of the report.

It would be folly to expect that numerical or tabulated statistics, however accurately and conscientiously compiled, could supply all the information needed, nor can they by any means constitute the sole basis for sound or logical conclusions. As statistical tables in sociology are but a congeries of more or less diversified aggregates, so, in their application to the study of the human system as a whole, not only in its wonderfully sublime and ever active physiological

operations, but more especially when we consider the varied and often rapid and destructive pathological processes in organic disease, their true meaning and import can only be reached and grasped through careful and critical study. Not alone the method, but even, if possible, the very intent of those who have manipulated the raw material, must be fully considered when any independent investigator undertakes to interpret the work and report of others. Because, in the course of his inquiry, there may be found so many apparently contradictory points requiring elucidation, or pitfalls in the shape of unwarrantable generalizations, and which even a personal interview with their author or authors would hardly suffice to clear up, that it is often difficult, and sometimes impossible, to arrive at the truth.

This difficulty, though frequently due to careless methods, is sometimes, I fear, but too clearly the result of design on the part of the compiler to suppress or distort data of vital importance, and without which it is not only impossible to arrive at correct conclusions, but, what is still more to be deplored, must often lead to serious error. Hence the charge that "anything can be proved by statistics," though too sweeping an assertion, is not groundless or without many grains of truth. Consequently, while some allowance must be conceded to our brethren on the score of invincible bias, as the outcome of a magnified, but perhaps otherwise laudable, conception of *amor propria*, any author, before he flings broadcast the medical or surgical statistics of his individual work, should endeavor, as far as possible, to be explicit, but, and above all, to adhere strictly to the truth.

These reflections have been prompted by the difficulty experienced in my efforts to interpret the records of vaginal hysterectomy, and which I have found to be truly "an unweeded garden."

Thus Fabbri, of Modena, at the International Congress in Rome in 1894 reported twenty-four cases of vaginal hysterectomy for carcinoma after this fashion: Two cases relapsed at five months, two at six months, one at ten months, one at twelve months, one at fourteen months, two at sixteen months, three at seventeen months—in all, twelve relapses; and he concludes this vague but characteristic report by declaring that no less than 16.6 per cent. were cured.*

* On the same occasion F. Durante reported forty-eight vaginal hysterectomies for cancer of the cervix, and two of the body of the uterus. In all these cases great care was taken to exclude such as showed infiltration of the parametric tissues. Nevertheless, forty-three succumbed to relapse within two years, and two only were yet well—one after four years and the other after five years. One died from sepsis after operation. He asks: "How comes it that Martin reports seventy per cent. and Leopold 64.5 per cent. complete cures?"

As already stated, my main object on the former occasion was to glean from the chaotic mass of figures and statements within my reach some trustworthy data regarding the degree of immunity reasonably to be looked for through partial or total hysterectomy for cancer by means other than galvano-cautery.

In how far, if indeed at all, I succeeded in unsettling the views of those who had already permitted themselves to be swept along in the whirl and glamour of sanguinary surgery, I can not say, nor is it my purpose now to inquire. I confess, however, to the belief that no such feeble effort could have availed much in stemming the current of popular faith in what was fondly hoped might stay the ravages of a disease the very thought of which is a terror to women. On the contrary, there is reason to fear that the few grains of seed of my personal experience were strewn on, I will not say barren, but irresponsible soil; and yet, if the temper of the times can be determined by the drift of periodical literature and individual observation, the pendulum is already on its return toward conservative equilibrium.

At a very early period of my investigation I was particularly struck with the great diversity of opinion and the still more remarkable lack of uniformity in the experience of different operators regarding primary mortality. I endeavored to show, and I think proved, that neither the fortunate but alluring experience of a few who in their work seemed to enjoy the protection of a special Providence, nor the optimistic predictions of others regarding the future, could be relied upon as a safe basis for generalization.

So, while I shall not trespass on your time and patience by going over the same ground again, I shall merely refer in a few words to the net results of my researches up to that period, and the conclusions to which they inevitably tended.

In the first place, I found that in twelve hundred and seventy-three colpo-hysterectomies by thirty-eight surgeons (European and American) the average primary mortality was 14.6 per cent., in spite of the fact that the great majority of contributors to this record had been trying their hand at perfecting the technique of these operations for many years.* As to recurrence, one of the most favorable exhibits obtainable was that of two hundred and thirty-five such operations by leading surgeons, mainly in Germany and France, with the result that in sixty-three of these cases (or twenty-seven per cent. of the whole)

* *Zeitschr. f. Geburtshilfe und Gynäk.*, 1892, xxiii, pp. 94-158; University Woman's Klinik, Berlin.

there was an average exemption of three years and four months, while nothing whatever was said as to the fate of one hundred and seventy-two (or seventy-three per cent.) of the entire number operated upon.*

Again, we found that within the space of three years there were no less than one hundred and sixty-three vaginal hysterectomies for cancer in one institution alone, and at the expiration of two years, of these one hundred and sixty-three patients, there were but forty (or twenty-five per cent.) living; of these forty, nineteen (or about twelve per cent.) were reported to be without recurrence, and in twenty-one (or thirteen per cent.) the net gain was an abbreviated existence, and a condition much more wretched than if they had been humanely permitted to eke out their sad but allotted period of life. Nor is this assertion regarding relapses at all exaggerated, because it is a notorious fact that the suffering which accompanies a recurrence of this dread malady, when the deep pelvic structures become involved, are infinitely greater than in the primary attack.

Anent this gloomy record, I referred to my own experience with supravaginal excision of the diseased part by the galvano-cautery knife, followed by thorough dry-roasting of the remaining excavation. I stated that in forty out of sixty-three cases of cancer of the portio vaginalis (twenty-three having strayed away) periods of exemption from relapse were obtained ranging from two to twenty-two years, being an average of over nine years for each; and of fifty out of eighty-one cases involving the entire cervix (thirty-one being lost sight of), ten had an exemption from recurrence for over two years, eleven over three years, six over four years, eight over five years, six over seven years, two over eleven years, one over thirteen years, and one over seventeen years. Nor is this all, for the table would now bear important reconstruction—no less than six of these cases, and probably many more, having until now enjoyed a complete immunity. Moreover, one patient operated in 1875, and a most unpromising case too, and who could not be found at the time of my report, has since been discovered by Dr. Homer L. Bartlet, of Flatbush, with whom I saw her, and who was present at the operation. Two months ago, or nearly twenty-one years after the operation, she was in perfect health.

With these and many other equally startling facts before me, it is not surprising that I should have then, as I have now, arrived at the conviction that *there is positively no place in legitimate surgery for colpo-*

* Gynæcological Transactions, vol. xvii, p. 35.

hysterectomy, or high or low amputation in cancer of the cervix, except when performed through the agency of the galvano-cautery.

About twelve months ago, finding that further researches failed to afford any additional light regarding the ultimate results of total ablation of the uterus for cancer, I made a personal appeal to each one of one hundred and fifty leading gynæcologists both here and in Europe. Though twelve months have now elapsed since my circular was issued, I regret to be obliged to record but fifty-three replies, some of which would almost seem to have been designed to further befog the whole subject of my inquiry, others so indefinite as to be worthless, and a very few only, to which I shall refer, and from which any reasonable or probable opinion could be formed regarding recurrences.

In looking over the more recent reports of individual operators, one can not help observing now, as in the past, that same want of definiteness and the absence of uniformity, nay, the most divergent experiences, and often total silence, regarding what we are bound to consider a most vital question—namely, What thus far have been the ultimate results of vaginal hysterectomy for cancer of the cervix? For example, in the table here appended it will be observed that Dr. Joseph Price, who reports no less than one hundred and fifty operations, says that in his experience the average period of exemption from recurrence of the disease has been less than one year, while Dr. Eastman, who has operated one hundred and fourteen times, puts the average at two years. Again, Dr. Boldt, who records eighty-four operations, knows of only twenty-five recurrences, while Segond informs me that “in eighty of his operations which he has followed he knows of five cases only who are cured, or from two to five years free from recurrence.” Dr. Polk, who has operated fifty times, says every one of his cases relapsed within two years; but Dr. E. C. Dudley, who also claims fifty operations, “believes thirty of the number well,” and Dr. Baldy, in twenty-five cases, has had no relapses reported, but Dr. Mundé, with an equal number, says that the disease reappeared in every one, and invariably within from six to nine months.

With all this bewildering incongruity, however, and which would seem to be a feature singularly characteristic of the statistics of these operations, a careful analysis of this and other tables, previously scrutinized, could hardly fail to convince the most radical enthusiast that total ablation of the uterus for cancer of its cervix has conferred no benefit on the victims of this disease, but, on the contrary, has consigned an overwhelming majority to a premature grave. Indeed, I myself have known two cases of well-marked cancer of the cervix in

an early stage, but in neither of which would surgical or indeed any local treatment be permitted, and yet one of these patients lived over three years and the other nearly five years. May it not, therefore, be reasonably surmised that many of the very eligible cases heretofore operated upon where the disease has been strictly limited to the portio, or where there was found, for instance, "a little growth the size of a filbert," have been sacrificed to the whims and conceits of modern surgery?

I would now call attention to the table on the opposite page.

From this table it will be observed that in seven hundred and twenty-eight operations by sixteen contributors, who state their primary mortality, we find an average of seven per cent., but if we exclude the phenomenal records of Price and Eastman, the average primary mortality in four hundred and sixty-four cases by fourteen operators would be about 10.5 per cent. As to relapses ranging from two months to two years, we find that six hundred and nine operations by eighteen contributors give three hundred and seventy-six relapses, or over sixty per cent., and yet who, after a careful scrutiny of the whole statistics of colpo-hysterectomy, would venture to assert that any estimate from this limited source could be accepted as a reliable basis for generalization?

There is yet another aspect in which this table must be considered, and it is this: In two hundred and eighty-three operations by ten contributors who specify the proportion of patients claimed to have crossed the border-line of exemption from recurrence, we find the number to be thirty-two, or about eleven per cent.; but though seven per cent., at a very low estimate, or, say, twenty lives, have been sacrificed to obtain this result, we have yet two hundred and thirty-one to account for. In other words, of every one hundred cases, seven die from operations, eleven have life prolonged, and eighty-two, as I have said before, have been made more miserable "than if they had been humanely permitted to eke out their sad but allotted period of life."

With this melancholy record before us I feel compelled once more to appeal to every member of this Society, as well as to the entire profession, and beg that they will give this whole subject that calm and careful thought and consideration which its vast importance, no less than their own moral obligations, demand. And in order that profitable results may follow such practical scrutiny as this question calls for, it is hardly necessary to say that the subject must be approached with the mind free from all bias and in an independent spirit. I

OPERATOR.	No. of Cases.	Prim. Mort.	Recurrences.
Price.....	150	4.5	Average period of exemption less than one year.
Eastman.....	114	3.5	Average period of exemption less than two years.
Aubeau.....	106	...	Exemption from six months to five years.
Boldt.....	84	5	Twenty-five relapses known; of fifty-four, some too recent, others not heard from.
Segond.....	80	...	"I have followed eighty of my cases, and I know of five only free from relapse from two to five years. All others relapsed in two to fifteen months."
Polk.....	50	...	"Every one relapsed within two years."
E. C. Dudley..	50	...	"Thirty believed to be well, though many of the whole done within two years."
G. Braun.....	50	...	"Twenty of these I have known to relapse within one month."
Kostbom.....	51	4	Nothing said as to relapses.
Dohrn.....	88	6	Recurrence in sixteen cases from three months to three years. "No other cases of relapse reported to me."
Veit.....	...	...	"I am myself engaged in a work on this subject, in which I incidentally call attention to the unreliability of the statistical compilations of the various authors."
Richelot.....	53	...	"Eight free from relapse from three and a half to eight and a half years. Others relapsed in from three to twenty-seven months."
Coe.....	34	6	At least one third advanced too far, or operation incomplete and recurred rapidly. Nine relapsed in one to two years. One well four years. Others lost.
Baldy.....	25	3	"No recurrences reported."
Mundé.....	25	2	"Invariable recurrence within six to nine months."
Penrose.....	20	...	One well five years. "Most of them died from quick recurrence."
H. McGuire...	18	1	"Two well five years. Fifteen relapsed in eight to fifteen months."
McLaren.....	14	2	Six relapsed in three to sixteen months. Five had no relapse from three to six years. One lost sight of.
A. H. H. Lewers	16	3	One four years. One over two years. One relapsed at two years. Five not followed.
A. P. Dudley..	15	...	Average exemption eighteen months. "Galvano-cautery gives best result."
Chadwick.....	12	1	One exempt for four years. Ten relapsed within twelve months.
Sutton.....	13	2	Two well four years. Two quick relapse. Seven lost sight of.
Treub.....	33	6	Eight relapsed from three months to two years. Nine operations incomplete and died soon after. Five exempt two and a half to six years. Five too recent.
B. B. Brown...	8	...	"No relapse reported."
Watkins.....	10	1	One relapsed in six months. Others lost sight of.
Holmes.....	6	1	One exempt two years. Two three years. Two relapsed rapidly.
C. D. Palmer..	4	...	Two living two years. Two relapsed within one year.
M. McLean....	...	...	Number or mortality not stated, but says: "In all cases I have followed, this disease has returned within a few months. . . . My experience is that the longest immunity is to be obtained by the Byrne method."

would therefore respectfully suggest that the opponents of galvano-cautery, which I know has the drawback of being a little troublesome, cease to indulge in such misstatements as, "there is absolutely no field for partial hysterectomy," that "the time for high amputation has gone by," or that it is "more dangerous than hysterectomy," for those who are best entitled to speak know that not one of these assertions is true, except in so far as they apply to the ordinary or worse than useless method of Schröder and his followers. The recital of a comparatively few successful experiences, in which no extraordinary or exceptional skill or dexterity dare be claimed, or strained attempts at vague and groundless generalizations, may serve for a time to appease uncomfortable reflections, but can have no weight in solving the great problem as to what is the safest and most successful surgical treatment for cancer of the cervix uteri. I have elsewhere stated that though experience and skill are essential in colpo-hysterectomy, as in all grave surgical operations, they are not the sole factors to be considered in determining or accounting for results, because we all know that comparatively indifferent operators may, and as a matter of fact do, have "runs of luck," and in which neither great skill nor experience can be said to bear much if any causal relation. On the other hand, men of whose skill, dexterity, and general ability there can be no question, are known to have met with so many disasters, immediate and prospective, in ablation of the uterus for cancer, that they honestly admit they not only doubt its utility, but seriously question their moral right to repeat the operation. It follows, therefore, that apologists for total ablation of the uterus, as a justifiable measure for cancer of the cervix, can not consistently hope to meet the arguments and hard facts of those who differ from them by selecting and retailing individual experiences, but are bound to acquiesce in a fair and unbiased average of the whole.

As I have already hinted, the question of primary mortality need hardly be considered in discussing this subject, because whether the death-rate due to the operation be seven, ten, or fifteen per cent. does not seriously affect the more important question as to its practical utility. The maximum rate is in itself nothing to be ashamed of, and if the gain were at all proportionate to the risk, and if we knew of no safer or better means of combating the disease, it were folly to doubt the wisdom of its general adoption.

But, after long clinical experience and a fairly exhaustive study of the statistics, I am fully convinced that there *is* an infinitely safer and better means, and one possessing certain merits, immediate and re-

mote, to which no other means or method can lay claim. These, briefly enumerated, are *exemption from traumatic contamination of parts already sound or presumed to be so ; the avoidance of hæmorrhage, shock, peritonitis, and post-operative sepsis ; consequently, the almost total annihilation of primary mortality or even danger ; and, lastly, "et propter hæc," and, above all, a prolonged immunity from recurrence.*

With regard to one of the above named grave and more immediate dangers to be feared in vaginal hysterectomy as ordinarily performed, and for whatever condition—I refer to sepsis—it seems to me that the very nature of any such procedure, and in spite of the most perfect technique of this particular operation, for which we are largely indebted to our distinguished visitor, Dr. Segond, forbid the hope of always escaping it, even by the most rigid observance of such anti-septic measures as are found to be practicable. In support of this opinion, and without going into details, I again appeal to the clinical statistics as well as to the personal observation of my colleagues, many of whom, I am glad to think and know, after a large experience with the two methods or ways by which uterine ablation may be effected—*i. e.*, vaginal or abdominal—do not hesitate to prefer the latter as being decidedly more *secundum artem*, admitting of more thorough anti-sepsis, and, consequently, safer.

I can not dismiss this passing reference to antiseptics, the most precious boon and blessing conferred by science on general surgery since the introduction of anæsthesia, without remarking that, in spite of all the good it has beneficently enabled us to accomplish, it is, in one sense, chargeable with much of the injudicious and reckless pelvic surgery of the past, including total ablation of the uterus for cancer of its cervix.

By its mantle of operative impunity it has shielded while it allured every neophyte in gynæcology, ambitious of popularity at any cost, and quite forgetful that

"Fools rush in where angels fear to tread,"

to resort to the most unwarrantable surgical measures, and often to the serious and permanent detriment of confiding but helpless sufferers.

It has doubtless often tempted the purely mechanical surgeon, frequently not of the broadest ætiological views, and perhaps indifferent to or incapable of aiming at a comprehensive and rational diagnosis, to resort to heroic measures for ailments to which, if not wholly of systemic origin, the sexual organs may be said to bear little if any

causal relation. Again, to antisepsis, re-enforced by its twin blessing anæsthesia, are we to attribute the fact that one hundred women may submit to these operations and yet ninety may survive for a while at least. In a word, without antisepsis hysterectomy for cancer of the cervix would have had but a short and most inglorious career, but hundreds of women would have escaped an untimely and premature grave.

From this point of view, therefore, one might not unreasonably ask whether, after all, antisepsis has not done more to degrade than to elevate our special department of medicine? If, through the abuse and diversion of its inestimable benefits and privileges, it has led to careless methods in diagnosis, a want of due regard for consequences beyond mere recovery from operative work, and in this way opened up a wide field for charlatanism of the basest kind, then, indeed, has it not been an unalloyed blessing, but, to some extent at least, rather a curse to gynæcology.

Like liberty, that divine and inborn right of civilized man and nations, so often claimed and fought for in the name of the torch-bearing goddess, and in whose name also the foulest deeds that stain the pages of history have been perpetrated, antisepsis has been too often made the license and the scapegoat of wanton, unnecessary, and unjustifiable sexual mutilation.

Recurring again to the remarkable immunity from relapse which I have over and over again proved to be the intrinsic, and I might say exclusive, attribute of the heat generated in these cautery operations, and its germicidal effects on outlying tissues apparently healthy, and cells often, no doubt, in a transition stage of degeneration, I can not do better than repeat what I have stated several years ago.

"I am of the opinion that in the parametric tissue of many cancerous uteri, and much beyond what might seem to be the limit of disease, there exists some morbid cell changes due to faulty nutrition or cancer germs, but in so undeveloped a state as to be inappreciable even by the aid of the most powerful microscope. Under such circumstances there is surely nothing unreasonable in surmising that cell proliferation, hitherto slow or almost dormant, would be hastened, and that formative processes, so responsive to any kind of irritation, would be roused into active life through the traumatic stimulus of an operation and the exposure of more or less extensive raw surfaces. On the other hand, in the progress of an amputation by cautery, and where the heated knife is so long and repeatedly applied (for such operations must be slow), the effects of the heat on outly-

ing structures may be imagined by the shriveled and comparatively small size of what had been, before operation, a voluminous cervix. In no other manner do I think it possible to explain certain phenomena following these operations by galvano-cautery—*e. g.* (1) absence of fever and almost all pain, pelvic or peritoneal; (2) the almost universal immunity of the scar tissue after cauterization from secondary attack in the event of recurrence of the disease; and (3) in the case of relapse, the long respite obtained from reappearance of the disease in remote parts, even in the more unpromising cases of undoubted circumuterine infiltration."

With regard to the important features here enumerated, I would further remark that one of the most significant and, indeed, suggestive clinical facts connected with these operations is the immunity obtained from a recurrence of the disease in thermo-cicatricial tissues.

The direct bearing of this one fact on my explanation as to the germicidal power of the heat conveyed to parts beyond and outside the line of incision is too evident to need further comment.

On the other hand, the cicatrix following operations done in the ordinary manner is admittedly the vulnerable point, and almost invariably the first place selected for a recurrence, as has been demonstrated by Winter, who investigated this phase of the subject very carefully and thoroughly. He found that in fifty-four out of fifty-eight cases recurrence of the disease appeared first in the cicatrix.

So, gentlemen, as neither primary mortality, traumatic infection, nor sepsis follow galvano-cautery, and need not enter into the calculation, and as the most liberal allowance is rightfully due, and should be cheerfully conceded, to the more radical and dangerous proceeding, the chief if not the only question, when thus narrowed down, is whether in cancer of the cervix total or partial hysterectomy as ordinarily performed, or excision of the diseased part by the galvano-cautery knife, followed by deep and thorough dry-roasting of the remaining excavation, offer the better prospects for prolonged immunity from relapse.

This, and this only, is the problem which is now, and indeed has been for many years, presented for our investigation and, if possible, solution, and which ought not and can not be much longer ignored or treated, as heretofore, with an indifference by no means creditable or consistent with the claims and character of a humane and progressive profession. The principles involved are far-reaching, and, regardless of all personal consideration, should claim and obtain at our hands the most thorough and practical investigation to the end that we may

arrive at "the truth, the whole truth, and nothing but the truth." Until some earnest steps are undertaken in this direction there is no likelihood, judging from past experience, of reaching the desired end, as it is impossible for those who are wedded to ordinary methods, and have no practical knowledge of galvano-cautery, to fully appreciate the many and singular advantages of this latter agent.

In conclusion, and with this laudable object in view, it might not be amiss to suggest that our esteemed President name a standing committee of at least three Fellows who would take charge of such investigation; that the members of said committee agree to treat a certain number of operable cases of cancer of the cervix by galvano-cautery, and, if agreeable, under my supervision, in some one of our public institutions—say the Cancer Hospital—and report annually to this Society the result of their work.

Finally, I may say that it will afford me much pleasure, and at whatever inconvenience, to co-operate with and in every way aid this committee in their labors.

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EDITORIAL.

SPECIALTIES AND THE GENERAL PRACTITIONER : AN ANSWER.

Just as we were going to press last month, we received two letters attacking the spirit of an editorial, which appeared in the April number of this JOURNAL, and presenting urgent pleas in favor of the general practitioner as opposed to exclusive specialism in gynæcology. We were very glad to receive these letters and willingly made a place for them. They presented the subject very ably from a standpoint opposite to that which we maintain and have thereby added to the elucidation of a question than which no other is more personal or of more far-reaching consequence, at the present time, to gynæcologists as specialists, to general practitioners and to patients as well.

We had not space last month to answer these letters specifically, but the editorial which we did publish then undoubtedly furnished by implication a very strong reason why the practice of gynæcology by other than a specialist is greatly to be deprecated.

In this editorial, for June, we pointed out the fact that gynæcologists were themselves so divided and at odds, in regard to the pathology and treatment of even the commonest diseases of women, that the specialty may be justly regarded, speaking of the many, as being in that period which precedes evolution ; during the continuance of which eclecticism, in fact if not avowedly, is the reigning deity.

If this is true of those who devote their time especially to the study and practice of the amelioration of the diseases of women, what is reasonably to be expected if general practitioners also rush into the fray? The latter obtain what knowledge they possess in bits, as it were, and isolated fragments, partly from this gynæcologist and partly from that one, and both these teachers may very likely, as we have pointed out, hold quite contradictory views of the pathology and treatment of the same subject. Moreover, the general practitioner has neither the time nor the opportunity to study the rights or wrongs of various theories and methods but accepts and indeed must accept his practice because of the fact that it is fathered by a big name and bolstered up by big talk. Unfortunately, nothing was ever made true because a man with a big reputation or a self-reliant tongue declared it to be so; yet these are, for the vast majority of general practitioners, the only authority and foundation for their gynæcological practice. What can be the result of all this but "confusion worse confounded"? We have ourselves profound faith in the ultimate triumph of gynæcology as a specialty and we look forward confidently to the day of reaction, when the *furor operativus* shall have been sated; when we who call ourselves gynæcologists shall have recovered our common sense and begun again the study of our specialty upon a scientific basis; when the abdominal surgeon, tiring of the bellies of women, shall have re-entered the ranks of general surgery and left laparotomy upon the gentler sex to trained gynæcologists, who then will extirpate, not because extirpation is their *métier* but only because, in such cases, they must acknowledge their inability to cure.

It is due, in our opinion—and we have watched the course of events for upward of a score of years—to the successive incursions of general surgeons and practitioners, men who rushed in and took a hand without any previous special training, both here and in Europe, which has brought the specialty to its present sorry and unscientific pass. How, then, can we look with complacency upon the further inroads of untrained or half-trained labor? None of us would expect a carpenter, no matter how good an one, to do fine cabinet-work, and yet it is the multiplicity of gynæcological carpenters among us which has swamped our special work to-day!

We are told that "the oculist, the aurist or the laryngologist, as a rule, confines himself to his specialty; but the well-established gynæcologist—whose income runs into five figures yearly—will treat anything from a colicky infant to prescribing for a bald head." All

this is quite true, but these men are not specialists, whatever they may wish others to consider them. What are these but general practitioners or general surgeons in effect if not in name? It is not for the *so-called specialist* we are contending but for the *specialty*.

Another of our esteemed correspondents refers to the "simple" gynæcological conditions. There are no such conditions in this specialty, if by simple is meant a condition whose proper treatment is a matter of slight importance. As the female generative apparatus is a complete and distinct system, so its pathological conditions, through its peculiar connection with the sympathetic nerves, have so marked an effect upon every other part, that the maltreatment of one portion must affect, to a greater or less degree, the whole apparatus. The true science of gynæcology is not a collection of isolated facts. As a science it must be founded upon homogeneous, not contradictory principles. Unless its principles are all homogeneous, each dependent upon, explaining and amplifying the other, we can have no science but merely a pseudo-scientific hotch-potch. Moreover, a scientific principle, if true, must be *sufficient, definite and unvarying in the effect of its application*. It can not be opposed to anatomical or physiological indications, if it be true. As exemplifying what we maintain, we say that no surgical operation which is avowedly a "make-shift" can be founded upon scientific principles. It is for this reason, if for no other, that we contend that all operations in the treatment of malpositions of the uterus should be condemned which, like Alexander's operation and the various methods of "fixation" and "suspension," make no pretense of restoration to anatomical integrity but consist in an arbitrary and violent displacement of the organ to a position for which Nature gives no authority. Even the most ardent advocates of these several methods will not claim that a surgical procedure which is an anatomico-physiological cure—one, in fact, which actually restores the organ and its attached parts to the exact condition which was theirs previous to disease—is inconceivable. They say that they know no better method and that a large percentage of their cases are physiologically cured. But what does this acknowledgment mean when translated? Is it not a confession that the principles upon which these operations are founded are neither *sufficient* nor *unvarying in the effect of their application*? Can they be *sufficient*, from the standpoint of science, if they must do violence to the anatomical relations of the parts in order to accomplish their object? And are they *unvarying in the effect of their application*, if even a small percentage, out of similar cases and where

the operations are equally well done, are complete failures? As science is *knowledge*, not uncertainty, guess-work or chance, are we not justified logically in our contention that these operations are not founded upon true scientific principles? We have taken these particular operations by way of illustration because they furnish familiar examples and are of especial interest at the present time, but what we have said has a far more general application.

If gynæcology were a science of generally accepted and permanent principles and practice, we would unhesitatingly accede to the claim that the general practitioner should have a share—perhaps the lion's share—in this class of diseases; the specialist would then, in the natural course of events, become to a very great extent a consultant, as one of our correspondents very justly claims should be the case. But, as we have pointed out, generally accepted and permanent principles are not the foundation of gynæcological practice to-day. "A stream is not purer than its source" and the source and inspiration of our specialty at present is a very muddy one.

It will therefore be seen that it is not so much because we fear that the general practitioner would not do gynæcological work in its mechanical part as well as the specialist—though this is not without importance—that we are opposed to his entering our field, but because we do not trust his judgment to distinguish good gynæcology from the bad. In other words, we can look upon it only as a misfortune, if the general practitioner adds his quota to the already extensive demoralization of our specialty.

REVIEWS.

OBSTETRIC ACCIDENTS, EMERGENCIES, AND OPERATIONS. By L. CH. BOISLINIERE, A. M., M. D., LL. D. W. B. Saunders, Philadelphia, Publisher.

The warmest admirers of the volume before us can not describe it as having "filled a long-felt want." To us its mission and place in the obstetrical library is not at all clear. The author states that "the book is not a treatise on midwifery or a manual of obstetrics, of which there are excellent ones already written. It is intended for the use of the practitioner who, when away from home, has not the

opportunity of consulting a library or of calling a friend in consultation."

The book is not a treatise on midwifery or a manual of obstetrics because it fails to set forth the science of the subject on the one hand and the art on the other. It is neither a work of reference nor a working guide, and it would seem to us that the author would have done greater service to the "busy practitioner"—who is unfortunate enough to have wandered from his own fireside to attend an obstetrical case, relying upon the volume in his bag rather than upon the experience and knowledge in his head—had he advised him to study diligently a reliable text-book, and then to lose no time before taking a practical course in a lying-in institution.

In the book before us, to one not familiar with obstetrical emergencies and operations, the technique is not explained at length sufficient to guide him, and to one accustomed to this kind of work it would be of little value.

To the author's treatment of the subject of injuries to the parturient canal following delivery we take exception *in toto*.

It is not only entirely inadequate to the recognized importance of the subject, but is incorrect in the light of the present status of the science. "Incomplete lacerations do not require any particular treatment, as they heal spontaneously." In regard to lacerations through the sphincter he says: "It is well, however, to know that a certain number of these cases recover spontaneously."

The chapters upon abdominal palpation, version, and the forceps are to us the most satisfactory.

In the treatment of puerperal eclampsia the author is enthusiastic in commending bloodletting, and laments the disuse into which the lancet has fallen for years, and predicts its restitution to its field of usefulness.

The numerous personal reminiscences and local anecdotes are interesting, but we think would hardly be appreciated by the practitioner seeking aid in the face of an obstetrical emergency.

The most commendable portion of this volume are the illustrations, which are, for the most part, reproduced from the *American Text-book of Obstetrics*.

G. H. M.

DIETS FOR INFANTS AND CHILDREN IN HEALTH AND IN DISEASE.

By LOUIS STARR, M. D. W. B. Saunders, Philadelphia, Publisher.

The little volume before us is an effort on the part of the author to facilitate and encourage the prescribing of the diet of infants and children with the same scientific accuracy that is used in the administration of medicines.

In view of the great importance of the subjects of the artificial feeding of infants, and the intestinal diseases of infancy and childhood, any help in this direction should be gratefully received. The diet lists are arranged with reference to the age and to the condition of the alimentary canal of the little patient, and can be easily modified by the physician.

The list is detached and given to the mother with directions to be as accurately followed as the prescription that is sent to the druggist.

To all physicians who are called upon to regulate the diet or to treat infants and children this book should be of considerable value.

ELECTRICITY IN ELECTRO-THERAPEUTICS. By E. J. HOUSTON, PH. D., and A. E. KENNELLY, SC. D. The W. J. Johnston Company, New York, Publishers.

In this little book the authors have endeavored to meet a growing demand on the part of general medical practitioners and of the general public for reliable information of the physics of electricity applied to electro-therapeutics that can be readily understood by those not specially trained in electro-technics.

Much useless matter has been eliminated, and a short, concise, and easily comprehensible exposition of the subject is the result.

The illustrations are numerous and are fairly well executed.

TRANSACTIONS OF THE AMERICAN GYNÆCOLOGICAL
SOCIETY.

Twenty-first Annual Meeting, held in the Academy of Medicine,
New York, May 26, 27 and 28, 1896.

FIRST DAY.

May 26, 1896.

Morning Session at 9.30 A. M.

The *President*, WILLIAM M. POLK, M. D., in the Chair.

A letter of regret being received from Dr. Wilson, who for the first time is absent from the Society's annual meeting,

It was moved: That a committee of two be appointed to draw up resolutions of sympathy with Dr. Wilson in the affliction which has fallen upon him. Seconded and carried.

The chairman appointed Drs. Mann and Chadwick as such committee.

Dr. WILLIAM T. LUSK delivered an address of welcome.

On motion, the courtesies of the meeting and the privileges of the Society were extended to Dr. Segond of Paris, France.

VIRGINAL AND SENILE ENDOMETRITIS.

BY PAUL F. MUNDÉ, M. D.

(Author's Abstract.)

Chronic catarrhal inflammation of the lining membrane of the uterine cavity in the married woman is a well-known disease, and has been described in the text-books for many years as a cause of sterility and as the result of certain injuries incurred during parturition, or of pathological conditions (lacerations of the cervix, sub involution, retroversion) following that originally physiological function.

The causes of endometritis in the married nullipara are usually insidious and slow in their action. They are, repeated exposure to cold, a general catarrhal tendency, prolonged and frequently recur-

ring pelvic congestion such as is produced by excessive sexual intercourse. Sterility results from catarrh of the endometrium, for the discharge is acid and kills the spermatozoa, or the sensitiveness of the uterine mucosa causes an early expulsion of the fecundated ovum. Of the varieties of chronic endometritis occurring in married women nothing more need be said, as they are fully described in all modern text-books and are familiar to us all. Of endometritis occurring in the virgin and the woman who has passed the climacteric very little has been written, and the subject is scarcely noticed in the text-books. The author knows of no distinct communication bearing upon the subject of virginal endometritis. In the work of the author, *Minor Surgical Gynecology*, on page 448 is mentioned the case of a virgin of sixteen, seen in 1881, whose cervix presented a distinct bilateral cleft with separation of the lips, simulating so closely a laceration that only the presence of a tense hymen could convince one that it was not a puerperal lesion. At that time the author attributed this condition to a congenital defect rather than, as the eroded lips should have led him to do, to a chronic endometritis. Since then he has many times seen a similar condition. Dr. Charles B. Penrose has read a paper before the College of Physicians of Philadelphia, entitled Congenital Erosion and Split of the Cervix Uteri, in which he reports two cases of this occurrence. Leopold in 1872 reported to the Obstetrical Society of Leipsic a case of congenital erosion of the cervix, and at the same meeting Ahlfeld stated that erosions of the mucous membrane of the cervix uteri were of frequent occurrence in asphyxiated infants.

On the subject of post-climacteric endometritis the general literature is about equally barren. In a paper by Sexton, of Rushville, Ind., entitled Post-climacteric Endometritis, read before the American Association of Obstetricians and Gynecologists in September, 1895, Skene is quoted as having described the condition as "senile endometritis," which name the author gave the disease in his private case book years ago. Reference is also made to a recent paper by Dr. Maurange, of Paris. The observations of Skene, Sexton, and Maurange are almost identical with those of the author.

Virginal Endometritis.

Congenital fissure and erosion of the cervix do not come within the scope of this paper. Conical or elongated cervix or sharp retroflexion or antelexion may be found in the newly born infant. In regard to the congenital fissure the author can only repeat that he has never had the opportunity to see one. Since the case seen in

1881 he has observed a number of instances where the virgin uterus showed unquestionable signs of a chronic catarrhal inflammation, and where the lips of the external os had been so widely separated by the growth of the endocervical mucous membrane as to present a condition almost identical with that found after well-marked puerperal laceration of the cervix. No attempt is made to explain why chronic endometritis should not occur in virgins or nulliparous women, or why the mucous membranes of the uterus should not be subject to the same changes as the mucous membranes in other parts of the body. The author believes that the profession does not appreciate the frequency of these catarrhal changes of the endometrium in the virgin, or their symptoms, or the importance of recognizing and correcting these conditions. As a general rule, the author does not make local examinations in the cases of young girls, but there are extreme cases where necessity demands it. The author has known young girls of twelve to fifteen years of age suffer so severely from a thick, yellow vaginal discharge, and to lose so much blood at their periods as to warrant the unpleasant ordeal of a local examination. In only one of these cases has he found it necessary to use the curette. A remarkable instance of the condition under discussion presented itself during the past year in a young lady of eighteen years. Her normal menstrual period came on and persisted in such a violent degree that the author was asked to see her. A similar attack had occurred about six months previous, and several years ago she had had profuse menstruation which had not been benefited by the remedies employed. Upon examination was found a tense hymen, a sharply anteфлекed uterus, and a slightly prolapsed and swollen left ovary. The external os was gaping, admitting the point of the finger. Ordinary remedies were given, but the hæmorrhage increased so much during the next twenty-four hours that it became necessary to curette. This was done thoroughly, and a quantity of adenoid vegetations were removed. All hæmorrhage ceased after this treatment, and the patient left the city. Three months later a slight but persistent discharge of blood occurred. The os was found still gaping and the lips eroded. The endometrium was again curetted and thoroughly swabbed with nitric acid. This time a complete cure was obtained.

In the case of a young married woman who had never been pregnant a condition was found exactly similar to that of a lacerated cervix of the second degree with everted and eroded lips. As she had never been pregnant the condition must have been the result of a long-continued catarrhal cervical endometritis. The author is under

the impression that the cases of congenital fissure of the cervix that have been reported are the result of this disease.

The *significance* depends mainly upon the symptoms which the condition produces—namely, a more or less profuse muco-purulent discharge or menorrhagia. In the married nullipara, of course, sterility would be an additional probable result.

The *diagnosis* can be correctly made only by the digital and specular examination. The appearance of such a cervix is almost identical with a puerperal laceration with everted and eroded lips. The medico-legal importance of properly estimating such cases must not be overlooked.

The *treatment* consists in excising the hypertrophic mucous membrane of the cervical cavity, curetting the whole of the endometrium with the blunt and the cervical canal with the sharp instrument; if the eversion is marked, of paring the lips and uniting them with silver sutures. After-treatment of intra-uterine alteratives may be necessary to effect a permanent cure.

Senile Endometritis.

The author for many years has noticed that women who have reached the menopause are sometimes subject to a disagreeable muco-serous, pungent discharge which brings about an erosion of the lips of the cervix, of the vaginal vault, and a chronic vulvo-vaginitis. The author's explanation has been that the pelvic organs having undergone a gradual atrophy after the menopause, the nutrition of the various tissues was insufficient, and in consequence there was a breaking down of the cell elements in the uterine mucosa and in the vagina, and a serous discharge was the result. He has found that those women whose menopause has been produced by the removal of the uterine appendages are also subject to senile endometritis. The treatment that has been successful in a large majority of these cases has been the frequent application to any eroded surface and to the endometrium of a solution of nitrate of silver, from one half to one drachm to the ounce. These cases are usually cured in three to four weeks. The treatment is continued with powdered iodoform and tannin. The more serious cases are bloody discharges that occur in women who have not menstruated for one or more years. The discharge is sufficient to soil and stain the linen. In some, this discharge becomes exceedingly offensive and erodes the external genitals. These symptoms, of course, suggest malignant degeneration, but there are a few women with such symptoms who do not present the physical signs of

that dreaded disease. No evidence of malignant degeneration of the cervix is found, but a small atrophic uterus, an eroded cervix, a raw vagina and vulva ; and on passing the sound into the uterus a bloody, sometimes brown or blackish, discharge takes place. The microscope must determine the diagnosis in these cases.

The author has been surprised to find in some cases how suspicious were the symptoms and yet the condition was benign.

It is probable that the presence of a fibroid tumor in the uterus may in some cases tend to favor the occurrence of senile endometritis. This disease is not more common in cases where the uterus is displaced than where it is in a normal position. The treatment has already been indicated—namely, the curette, caustics (chiefly nitric acid), followed by a solution of nitrate of silver and drainage, and, finally, when the erosion was healed, the frequent application of iodoform and tannin powder.

Under no circumstances is a hysterectomy indicated for this disease.

DISCUSSION.

Dr. PENROSE (of Philadelphia) : As I understood Dr. Mundé, he doubts the existence of what has been called the congenital split of the cervix and attributes this trouble to hypertrophy and infection of the mucous membrane of the cervical canal. The two objections to this view, to my mind, are that it has been found in a newborn infant, in which there was no inflammation of the mucous membrane of the cervical canal, and in one case which I reported last winter there was no apparent hypertrophy of the mucous membrane, nor were there any symptoms referable to this condition. The girl had a well-formed hymen which would barely admit the little finger, and there was a distinct split, measuring an inch, on the left side of the cervix, without any eversion of the lips of the cervix. The erosion of the lips was due, I think, to the loss of the epithelium of the vaginal cervix. For these reasons I am inclined to think that the condition is in some cases—rare, of course—congenital.

Dr. SMITH (of Montreal) : I am very pleased that Dr. Mundé has given formal recognition to virginal endometritis, as Dr. Skene did a year or so ago to senile endometritis. Since Dr. Skene's article I have frequently noticed this condition in old women, and, as Dr. Mundé has pointed out, we had adopted the dictum that whenever a woman who had passed the menopause began to bleed again, we should suspect cancer until we found the contrary. I think it is a

good dictum to accept, and the proof to the contrary is that, on making an examination, we find the vagina eroded and a profuse discharge from the cervix. I think this condition of virginal endometritis is more common than we have generally thought; and I believe many of the cases of dysmenorrhœa and menorrhagia in young girls are due to inflammation of the lining membrane of the uterus, which at the menstrual period becomes much more swollen and thickened and blocks up the exit of the uterus.

It is easy to find the causes for this condition of catarrh of the mucous membrane when we consider how young girls neglect their health, expose themselves to cold in thin underclothing, expose their feet to the wet, etc. The same causes which produce catarrh in any other parts of the body will produce it in the uterus. Constipation, also, by obstructing the return flow of blood from the uterus, causes a condition of varicose veins in the uterine mucous membrane. A month ago I curetted a lady, thirty-eight years of age, who was almost bleeding to death from profuse menstruation, and I found a very villous condition of the mucous membrane. Another point to which I wish to draw attention is the effect of long engagements upon the menstrual function in girls. In several of the cases of menorrhagia which have come to me, I have found that the young lady had been engaged for many years and had spent a great many hours every day in the company of the man to whom she was engaged. This must have some effect upon the circulation of the uterus, especially when the constant rush of blood to the uterus which is caused by an association of that kind is not followed by the natural rest produced by pregnancy. Tight corsets, exposing the feet to cold and constipation I consider among the principal causes of this condition, and the treatment is just such as we would expect to cure cases of catarrh in other parts of the body.

Dr. MANN (of Buffalo): The observations which Dr. Mundé has made I think we can all confirm. I have seen cases of both virginal and senile endometritis which would correspond closely to the conditions he has described. He says, however, that he is not sure about the cause of these conditions. In the address which I had the honor to present to the Society last year I mentioned certain conditions which it seems to me are often found in connection with senile or virginal endometritis and which act as causes. They are constitutional conditions, conditions of bad nutrition, which we often find particularly in old women but sometimes in young women, which we class together as asthenic conditions. If we pass this by without

notice, if we do not give due consideration to the general condition of our patients, and do not treat them constitutionally, look after their general health, and observe carefully their general way of living, we will almost certainly have relapses, and the only way to make perfect cures is to treat not only locally but to look out with the greatest possible care for their general health.

Dr. PALMER (of Cincinnati) : This is the first paper I have heard upon this subject. Of course we all have seen numerous cases of virginal and senile endometritis, but most of these cases are mild. But I have seen several cases in virgins, in two of which, after failure with constitutional and local medication, I was compelled to make the operation referred to by Dr. Mundé. In two of these cases I had no question as to the virginity of the ladies—from their appearance, from the families from which they came, and particularly from the condition of the hymen—but the cervixes in both were enlarged, thickened, hardened, and eroded, and precisely that condition which we find after laceration from parturition. In one the anterior cervical lip was thickened and hardened, as we usually find it after labors which have been long and hard, where the anterior cervical lip had been caught and pushed down, thickened and hardened. I was obliged to incise a considerable part of the anterior cervical lip. In both cases complete relief was obtained.

Dr. KELLY (of Baltimore) : A couple of hundred years ago some of our predecessors (gynecologists) discussed the question whether a woman lost her virginity by being kissed. So I think we lack a careful definition as to what constitutes virginity. I have never seen an inflammatory affection of the endometrium in a *virgo intacta*. I have seen it in women who have been examined and subjected to instrumentation, when they were liable to the same kinds of infection that they are through married life. I have, however, often seen in a woman a blowing-out or puffing-out of the cervical mucous membrane on to the vaginal surface, the uterus becoming congested ; and that being the only outlet for it, the patient has an airy, rounded os. Dr. Noble sent me for examination some time ago a beautiful specimen of this, in which he had amputated the cervix in a virgin. It was accompanied by a photograph. It looked like that of a woman who had borne a child. In the examination of these cases I would like very earnestly to recommend examination in the knee-breast position with a small speculum, which will not hurt the hymen. But I would like to warn, together with Dr. Mann, against very active local treatment. I think these cases are more constitutional than

local in the absence of true inflammatory trouble. In old women the inflammatory infection is not infrequent, and is mostly limited to the cervical mucosa. I have seen a number of cases where we had reason to suspect cancer, with a foetid discharge, in which the cervix was almost entirely and in some cases completely closed, and it was necessary to curette and dilate in order to let out the accumulated pus in the uterus. I have found it difficult in some cases to keep the canal open and to keep up drainage.

Dr. LUSK : There is one form of endometritis that I would like to lay some stress upon. My attention was first drawn to it twenty years ago in a paper by Hildebrand. Since that time so many cases have come to me for treatment, and the treatment is so simple and the results so satisfactory, that I wish to say a word about it. It occurs in young girls (virgins) with intact hymen, who have menorrhagia, who suffer a great deal at the period, and who menstruate profusely. When examining under chloroform I have found the os externum extremely small, and cervical catarrh that has distended the cervical canal. They have the catarrh ; then that is followed by an erosion, a partial closure, then dilatation of the cervical canal, then dilatation of the uterine cavity, and then a painful menstruation with hæmorrhages at the time. It is completely removed by dilatation of the os externum, which is followed by an escape of the retained secretion, and the uterus, which has been dilated, is reduced to its normal dimensions, the menorrhagia disappears, and the patient has a new life.

Dr. TABER JOHNSON (of Washington) : One very practical point which arises in connection with what we have heard, is that a distinction can be made between cases where there does exist a flexion in the uterus, where there is no real doubt in the mind of a man who has experience in examining cases whether the woman is a virgin or not. It is quite possible for us to save the reputation of girls where the charge is made that the laceration which exists is the result of a slip in virtue, and that the girl has actually had a miscarriage. One of the most practical points made in the doctor's paper is the assertion from one who can speak with so much authority that these congenital conditions can exist without there being any suspicion whatever attaching to the patient. It is also very pleasant to note, coming from one who has been so busy during his life performing surgical operations, the mild methods which are proposed for the cure of these things. So far as the other condition is concerned, his suggestions are equally mild. I have seen two cases presented at medical socie-

ties where the uterus had been removed in obedience to the present craze for vaginal hysterectomy, under the suspicion that it was a bad discharge, and that the case was one of cancer of the uterus, where there was more or less constant hæmorrhage from women considerably past the menopause. After examination of the uterus has been had it is found to be a case where the disease could have been removed by carrying out the suggestions made by the author of the paper and by Dr. Lusk, by dilating the cervix sufficiently to let out this accumulation of pus and relieve the system from the absorption of this more or less purulent condition, and do away with a great many of the symptoms also.

Dr. MUNDÉ (in closing) : I perhaps did not lay sufficient stress on the constitutional nature of these cases. I mentioned general anæmia as one of the conditions that cause chronic endometritis in the married sterile woman, and of course the same remark applies to endometritis in the virgin. I quite agree with what Dr. Mann and Dr. Lusk said on the subject. Constitutional treatment is absolutely indispensable and absolutely necessary for the cure of any case of chronic endometritis, unless it is directly centered on a local lesion of the cervix. As to Dr. Kelly's remarks concerning the effect on virgins of examinations, I want to say that the cases I referred to were virginal endometritis. If there is anything in a hymen which could only be distended at the cervix with a small Sims speculum at the risk of rupture, and which has not been tampered with before, I would call such a girl a virgin.

LIABILITY TO PROSECUTION FOR DAMAGES IN ABDOMINAL SURGERY.

BY CYRUS A. KIRKLEY, M. D., TOLEDO, OHIO.

(See page 17.)

DISCUSSION.

Dr. KELLY: This is a very important matter, and I am glad it has been brought before us, if it will only start some investigation which will put these matters in a clearer light. I think the semi-civilized state in which we are living is nowhere more apparent than in the operation of the laws in these matters. A recent graduate who has taken a two or three years' course in college stands on a par with a man who has had years of experience, when we come to give testimony in courts of law. The most experienced man is not ex-

empt from prosecution on the part of the most degraded member of the community. I remember the disgust and the anger of the distinguished Prof. Gross, the elder, at being sued for amputating the arm of a colored man at Jefferson College. A suit was started against one of our hospitals recently in Baltimore, and I took occasion to get some opinions on the matter from the New York Hospital and from the Boston Hospital, which I would like to insert without reading them. I also secured from the lawyer who is connected with the hospital a valuable written opinion showing the laws in the different States as to the liability of hospitals. It was my desire to have inserted in the charter of the hospital a clause exempting it from suit on the part of patients who did not pay, but I found it would only increase the liability of the hospital in case of patients who paid anything at all, even for board. I think to protect ourselves as specialists certain simple rules ought to be adopted which I follow in my own case. We ought to keep a written record of the history of cases and of the subsequent visits made. We ought to note carefully the examination, and under the head of examination I think it is always important to put down what the patient says, in her own language, of her present condition. There is often a wide discrepancy, when she comes back and says she is not improved by the operation, between her statements at the first visit and afterward. You can call her attention to the fact that certain things have disappeared, and she is often ready to acknowledge it when she recollects them. I think it is important to note, the first time you get a clear idea of the case, what line of treatment it is proposed to follow, and what is promised as a result of that treatment. I am also very careful never to promise absolutely to effect more than a mechanical result in a surgical operation. The patient comes to us, as a rule, for pain, and we look to another thing—the mechanical result which the surgical operation is going to effect—and we are sometimes working at cross-purposes. We get the mechanical result, but the patient may keep the pain and be dissatisfied for that reason. So I promise the patient to remove the disease or correct the deformity, but I promise nothing more, absolutely. I always state to the patient that while the chances are in favor of recovery and relief, the relief is not promised as absolutely certain. In cases of abdominal operation I invariably state that death may occur, giving statistics based on my own work. I think it is always well to be perfectly frank with the patient, or with some responsible member of the family. It is important to keep careful notes of the patient during convalescence, as

to what is being done for her, and as to any changes in her condition. And we should follow the general rule of treating the patient courteously, and be entirely fearless after we have done our duty, and a man's position protects him. If he has done a great deal of work, is well known in the community, and has a great many patients and friends, he is not very liable to any serious trouble from prosecution.

Dr. E. P. DAVIS (of Philadelphia): I desire to call attention to a medical point which was impressed upon me by experience, and that is that a woman may pass through a normal parturition, during which puerperal period she has had no fever, may two or three weeks afterward be suddenly seized with abdominal pain and intestinal affection, and may perish from rapid sepsis caused by the bursting of a purely ovarian or tubal pregnancy, a case similar to that referred to by the author of the paper. To accomplish anything for the patient in that case, abdominal section within an hour or two offers the only possibility of success. The rulings of the Common Pleas Courts of Pennsylvania are that in a case for physical injuries two physicians shall examine the claimant, one selected by the plaintiff and one by the defendant. That is practically an approach in a faint degree to a medical tribunal. It has resulted sometimes in simplifying such cases, and in bringing about a better comparison of the results of the examinations by the two physicians. Unfortunately, however, it is an experience common to all of us who have been called upon to make examinations for legal purposes that the results of professional opinions may fail absolutely. A very remarkable case of a professional blackmailer is on record where a woman, in coming down in an elevator in a large building, sustained a very slight jolt. She secured sufficient evidence of retrodisplacement of the womb (by going assiduously to the offices of gynecologists) to bring a suit for damages, and won a large verdict. The verdict was thrown aside by the upper Court. I am informed by my attorney that we must be very careful of the record we make of our treatment. When a bill is presented in the State of Pennsylvania to the estate of a deceased patient, no hieroglyphics will be accepted by the Court. The physician's record must be presented to the Court in such shape that any intelligent person can identify his claim to remuneration.

Dr. KIRKLEY (in closing): The inefficient manner of getting at the facts in this case were so apparent that it suggested this paper. I was an expert witness upon the case of abdominal section reported. It was quite remarkable in a medical as well as in a medico-legal way. It was not known that the surgeon was an abdominal surgeon

at all, but I learned afterward that he had been operating for some considerable length of time. His statement was practically as I gave it in the paper, but he made it even stronger than that—that the uterus had not developed as we are told it develops in cases of ectopic gestation; that it was about the size of a six months' pregnant uterus; that the foetal sac was within the interstices of the uterus, between the layers of muscular tissue; that finding it impracticable to take away the foetus, and instead of doing a hysterectomy, as would have seemed feasible to most of us, he dilated first with a Goodell dilator, then with his hand, and, finding the uterine cavity empty, removed the foetus through the uterus, having hardly a particle of hæmorrhage, and having no lochia at all for nine days, and then an offensive kind of lochia, which seemed very remarkable. We can see how such a thing might be possible, but the improbable part of it is, that the placenta was delivered without a single bit of hæmorrhage, and it was perfectly impossible to get at the fact whether that was true or not. The evidence from the medical witnesses called went to show that he did not deliver the child *per vias naturales*; that it was nothing more or less than a uterine pregnancy, which he found to be the fact after he opened the abdomen and took it out the natural way. The way those attorneys managed that case, it seemed perfectly impossible to get at the truth at all. I think such bodies as this, and the American Medical Association, ought to take this matter into their hands as a protection against those who are liable to be sued every time they do an abdominal operation.

The CHAIRMAN suggested that as the morning programme was at an end, a recess of ten minutes be taken to enable Dr. Johnstone to bring his paper, and a motion to that effect was carried.

CLINICAL IMPORTANCE OF THE MENSTRUAL WAVE.

BY A. W. JOHNSTONE, M. D., CINCINNATI, OHIO.

(Author's Abstract.)

As to what this menstrual wave is, who elucidated it, and when it was worked out, I must refer you at the outset to a paper of mine on The Pathological Aspect of the Stephenson Wave, read before the Cincinnati Obstetrical Society in 1895, and published in volume xxxi of the *American Journal of Obstetrics*. The man to whom this paper refers is Prof. William Stephenson, of Aberdeen University, whose original article appeared in the *American Journal of Obstetrics* for

April, 1882. At this time every one in England was speaking of the Stephenson wave, and as my first paper upon the subject of menstruation was to be delivered to an English audience, I found them ripe and enthusiastic upon all contributions indorsing the value of Stephenson's discovery.

Since then, both in season and out of season, I have been impressing the clinical importance of this subject not only on the gynæcologists but on the general practitioner, for I can not see how any man can do justice to his patients who has many menstruating females to care for, who does not fully understand this law.

First, as to menstruation itself, upon what does this law throw light? Without the definite charts of Prof. Stephenson vicarious menstruation would be an absolute enigma. Now that we know, in the most of these cases, that there is a certain amount of hardening of the endometrium, which obstructs the natural flow of the menstrual fluid, the reflex wave is thrown off to whatever point is weakest and wherever there is a pathological lesion. Thus we now see how this blood may be poured out at different points.

Intermenstrual pain, formerly a perfect conundrum, we now thoroughly understand. It comes in the trough of the wave, when the pressure is at its lowest, when the pelvis is anæmic and every organ is shrunken to its smallest diameter; then the adhesions to the circumference of the ovaries are put on the stretch, which during the congestive stage would be lax from the swelling of the ovary itself. An ovary with a pathologically hardened tunica albuginea, when the pelvis is filled with blood, has the vascular tissue in its interior thoroughly pressed upward; but when this physiological hyperæmia subsides during the trough of the wave and the tissues shrink, this hard surface bends inward and the surface of the ovary is thus put on the strain. As I have shown in other papers, this necessarily *must* produce pain, for if there is one law in pathology it is that without tension there can be no pain. The simplest of all inflamed ovaries, tubes, or other inflammation about the pelvis which give rise to pain just before menstruation, are made far more intelligible than they were in the old-time way, when we knew there was a congestion but knew not how it was produced. These are some of the riddles that this law explains to a man who has little or nothing to do with major surgery. But to the laparotomist this law means more than almost any other. It teaches him never to operate just before a period if he can possibly avoid it; why it is that menstruation always follows the removal of the appendages, and also that rather rare accident,

traumatic hæmatocele, which follows four or five days after a laparotomy is done. But these are more than "Twice-told Tales" to most of my audience. The one to whom, it seems to me, this subject is of more importance than to any other is the general practitioner. No matter what branch he may be in, if he has a troublesome symptom which recurs regularly at any particular point of the cycle of the menstrual wave, his attention should at once be attracted to the pelvis. There is not a functioning organ in the body which is not deranged by the reflex wave when the pelvis is in such condition as not to allow it to escape freely. Let us consider a few of these symptoms in order :

Indigestions are the commonest associations of pelvic mischief—so much so that I long ago made this statement: "Show me ten women with habitually bad stomachs and I will show you nine who have pelvic trouble." It is a rare thing to have a gynæcological case of metritis, a tear of any description, which has a really strong digestion. The constipation of these cases is proverbial, but the indigestions, even to the extent of nausea and vomiting, are old, old stories to all of you gynæcologists. I have had in my experiences not less than three cases diagnosticated by first-class general practitioners as ulcers of the stomach, which, when properly investigated, showed sub-involutions, lacerations, and general pelvic disease, all of whose stomachs promptly got well when the pelvic trouble was corrected. Sometimes the indigestion is worst at the crest of the wave; in other cases it is aggravated at the trough of the wave by the necessary anæmia of the sympathetic plexi. The only point is to see if the occurrence of the attacks is at any one point in the wave, and when that is the case one is very much to blame if he does not at once suspect the pelvis being at fault.

Hepatic symptoms are very commonly produced in the same way. In fact, I have seen three or four cases of reputed gallstones cured absolutely by righting the condition of the pelvis. Whenever you have a patient in whom you can not find a gross lesion about the gall bladder or liver, who has these recurrent attacks that do not go on to jaundice, the pelvis is by all means to be examined. I have relieved three patients in the last few years of all symptoms of gallstones by doing nothing but curetting the uterus or sewing up a tear.

I have seen forms of Bright's disease very much exaggerated at certain points of this wave. I have had two cases of intermittent glycosuria which were undoubtedly a sequel of menstrual headaches. The sugar would appear about the time the headache was at its

worst, would increase until about the time the headache ceased, and then it would take about a week to fully clear up, to be repeated at the next menstrual epoch, but without trace of sugar in the interval. Both these cases were absolutely cured by bringing on the menopause. This production of sugar is caused by the pressure of the reflex wave upon the floor of the fourth ventricle.

In touching on the kidney, I am led to speak of a reason the general surgeon ought to have this wave at his very finger tips, and I hope you gynecologists will listen closely to the report of the following case: I have a patient, sent me from the Northwest, who had her ovaries removed a year ago. On careful examination of her, I found the pain started always on the right side; has been there four or five years; recurrent attacks every four or five days running up the right side along the region of the ureter. These attacks would occur at intervals of three or four days to a week. After suffering from them for three years somebody removed her ovaries. Since then the attacks have been worse than ever. On examining her a few days ago, I found she not only had a stricture of the urethra, but a badly contracted bladder, with decided inflammation of the mouth of the ureter, a slight amount of pus in the urine, with a number of scales from the bladder, pelvis of the kidney, and ureter. All that was needed to have avoided this blunder was simply to watch the attacks with reference to Stephenson's wave. Instead of recurring regularly every twenty-eight days, as they would have done if due to pelvic or ovarian mischief, they occurred in four or five days. And this is the one point that I wish this paper to accentuate. Whenever there is pelvic mischief, even though it may be a reflex pain in some other organ, *that pain* returns regularly at some particular point of the menstrual cycle. Many sins against the ovary would be avoided if this simple little rule were watched by every one.

Before leaving the urine, one other point (that is now being worked out by a friend of mine) is that the menstrual wave undoubtedly has a great deal to do with the pathological metabolism of the body. Just how much I can not say to-day, as the experiments are not as yet complete, but enough has been found out to make it certain that it undoubtedly aggravates all these cases presenting the xanthin compounds.

The influence of this wave on the heart and lungs has been recognized since the beginning of the world. The hysterical heart, the fainting spells, are as old almost as any other knowledge given to us by the Egyptians. The dyspnoeas associated with it and the vica-

rious menstruations through the lungs are equally well known. Its influence on the thyroid and heart combined in Basedow's disease is a matter of common knowledge. Many cases of Basedow's disease I have been able to modify very materially by correcting pelvic conditions, but I always give the prognosis in proportion to the amount of disturbance caused in one particular part of the wave. It is generally the congestive side of it that does the most harm. I have frequently noted in these cases of Basedow's disease that the pulse would be much more rapid, the thyroid more distended, and the ocular stare more exaggerated just before the flow begins. Where you find a chronic metritis or an old tear associated with these clinical symptoms, you may confidently promise your patient a certain amount of alleviation of symptoms by ridding her of the pelvic mischief.

Loss of voice has been one of the most interesting subjects that I have studied in this connection. One patient, I remember, told me that she could tell to the minute when her menstruation would come on simply by the power to speak. For years she had been in the habit of losing her voice just at the beginning of the congestive stage. Sometimes she would have to whisper for several months at a time, but generally the control of the vocal cords would return with the first flow. This case had been treated for years by every imaginable kind of specialist—gynæcologic, laryngologic, pulmonary, etc. I found one ovary filled with pus and the opposite tube irreparably damaged. It has now been two years since the artificial menopause was brought on, and the voice has never been lost since. In a debate we had on this subject the winter before last, the aurists and oculists brought out some very clear cases of tinnitus aurium, deafness, amblyopias, retinal hæmorrhages, choked disks, etc., which were simply inexplicable without a thorough knowledge of the menstrual wave. Some of them were caused by the crest and some by the anæmic side of the wave. But to this they were undoubtedly due. Vicarious menstruations from the nose are very common, and in conjunction with the rhinologists I have cured a half dozen or so. In every one I found a pelvic lesion, and the outflow was caused simply by a rebound pressure from hardened tissue at the site of its wonted outlet.

Epilepsies and insanities, mental derangements of every description, which have regular periodic returns, should be studied very, very carefully before any operation is done. My rule is never to touch one of these cases until I have had her under my care three or fourth months, and am satisfied of a regular periodic return of the

symptoms at some particular part of the wave. My experience is that it is the crest of the wave that does the mischief. By this careful study I have been able to cure four or five cases. In one, a most marked case, that I had watched for four or five months and was absolutely certain that the menstrual wave was the cause of the trouble, I found a large, tender ovary associated with a little childish uterus in a well developed young woman of twenty-five years. When I first saw her the mental aberration would last the menstrual week. In the intervals she would be about as usual. But during the winter of 1893 I found the deranged condition was lengthening out until the attacks were almost merged into each other, so there was scarcely a week of sane interval, and she was rapidly approaching a condition of complete dementia. The operation was done, and, strange to say, from the moment of awakening from the anæsthetic there was never, nor has there ever been, a return of the old symptoms. In this field, though you must be the most careful of all, enough cases have been operated upon now to pretty well test the relationship between pelvic diseases and insanity. By careful statistics from all over the country, particularly from the Toledo Insane Asylum, it has been found that about five per cent. of female lunatics are so from pelvic causes. But we must remember that it is *only* about five per cent., and that the other ninety-five per cent. are nothing but lesions of the brain itself, and we must not be trapped into removing the ovaries of these people unless it is to save life. Of course they may have ovarian cysts, pyosalpinx, and the like, and whenever we can find such conditions they have as good a right to relief as any one else, but we can not expect to cure the mental condition of any more than five per cent. of the whole.

There are many other things I would like to speak of, for, in fact, there is no subject which would be more fruitful and bring out more interesting points for a general debate for a whole morning than the complications the menstrual wave produces when it goes awry. Not only the gynecologist, but especially the general practitioner, should have the laws of this wave at his very finger tips, for there is no one thing that is capable of more widespread and varied mischief. In handling the menopause is the time when we most need this thorough knowledge. But I have already consumed too much of your time, and so for my beliefs about it I will have to refer you to your own State Society *Transactions* for February, 1894. And I can not have a more fitting close for this paper than to repeat what I said in my former paper on this subject regarding the application of Prof. Stephenson's

theory—that “its benefits to the modern medical man in the elaboration of these feigned diseases has been surpassed by nothing in modern days, and equaled in its benefits to our calling only by Harvey’s immortal discovery.”

DISCUSSION.

Dr. SKENE (of Brooklyn): The paper of Dr. Johnstone leads up to what appears to be the most important and least defined branch of another subject, and that is, To what extent are the sexual organs responsible for many of the constitutional diseases, notably those of the nervous system? To what extent are lesions of nutrition and diseases of the general system, functional or acquired, responsible for many of the diseases of the pelvic organs in women? It is only a short time since nearly all the diseases on the nervous side in women were attributed to the sexual organs. Any one who has ever read the work of Dr. Storer, Jr., of Boston, will remember how nearly all cases of insanity and of hysteria, and nervous disturbances generally, were attributed to, and *proved* to be due to, diseases of the pelvic organs. A mad woman with a retroverted uterus placed in position immediately recovered. That view of the whole subject led to some very unsatisfactory practice. It is not long since a great many believed that cases of epilepsy could be cured permanently by removing the ovaries which were apparently diseased. To-day the best authorities, and those who have had the most experience both as gynæcologists and as neurologists, say that they do not believe that a case of true epilepsy was ever cured by any operation on any organ of the body. So we are correcting as we go on some of the mistakes we were led into by not thoroughly understanding the relations existing between the sexual organs in woman and the general organization. Alluding to the question which you raised, Mr. President, of the relation of the sexual organs to goitre and so on, and the influence of certain modern forms of treatment which you specified, being in precisely the same relation as insanity, hysteria, epilepsy, and all the host of nervous affections, I do not believe that we know quite the relationship which does exist—that is, the cause of it. Now, according to one theory of the gynæcologist, the fibroid affection would be most easily managed by giving the active principle of ovarine. Again, according to the theory of the relationship of the two affections, looking at it from the standpoint of the physician or general practitioner, thyroid treatment would be the proper treatment. I merely mention this to show how much we have to learn before we can definitely say

just what the relations are. Dr. Johnstone's paper is one that is exceedingly interesting, and on this subject we are thoroughly thankful to get hold of anything that seems to have the slightest foundation in science and common sense. I think Stephenson's ideas on that subject deserve all the commendation that we can give him. I have found that his views have been by far the most valuable guide in my clinical work, and others have had the same experience. If he has not struck the keynote and given us an idea of menstruation that is based on common sense and on science, I do not know that there is anything in the whole literature that is worthy of notice. While he deserves due credit, those who have been working in the same field (like our Fellow, Dr. Johnstone) have given us many facts. We hear little of Stephenson, but what we do hear is worth more than volumes, and I express the hope that he will be on Thursday morning an Honorary Fellow of this Society.

Dr. A. H. BUCKMASTER (University of Virginia): I would like to ask Dr. Johnstone in regard to one point. The value of these observations is very wide, and perhaps it may be still widened. We have been told that there is a wave in the male; that this wave is determined by an increase in the amount of waste material, an increase in the arterial tension, and to some extent the same facts have been noticed with Stephenson's wave which he applied to the female. I would like to ask for information how much work has been done on this line, for by applying the knowledge acquired from the study of the male sex we might perhaps be guided into a better estimation of the value in special cases to be attached to the relation of this wave to the menstrual function.

Dr. ENGELMANN (of Boston): This is a very timely paper. Reference has been made to Dr. Storer, and while the ever-swinging pendulum of medicine was far to one side, it has gone too far the other way now, and it is time that attention should again be directed to those relations, sometimes existing and sometimes wanting absolutely. We have no rule. It is a matter of observation, and I can not say even of individual experience, because no one case will be a guide to another. Whether the conditions are causative or resultant, I have found them in my cases, and the conditions will at times result from or accompany the uterine trouble, and will be relieved by proper medication, as symptoms bearing upon all the organs may at times be so relieved, in which medication has been tried in vain. It is both the gynecologist and the general practitioner who should observe these cases. You will say that the attention of the gynecologist is in-

variably drawn to the pelvic viscera, but there are cases and symptoms presented on the part of the nervous system, the stomach, the skin, or the eye, which would point to pelvic disease. It is by no means always the changes in the pelvic viscera which determine or decidedly influence other organs. We know very well that many cases occur in which we find decided lesions and no symptoms. It depends on the judgment of the individual. Experience in one case is no guide to another, and it seems to me that we should bring the gynecologist and the practitioner in closer relationship, and that each should benefit by the experience of the other. It was at one time expected that the removal of the ovaries would cure many of these nervous conditions. In my experience the ovaries have had much less to do with them than the uterus. Where benefit has been obtained by removal of the ovaries, I think it is only by checking the blood supply and rendering less sensitive the uterus.

Dr. JOHNSTONE (in closing): As to the question of Dr. Buckmaster, I am free to confess I do not know much about it. There are some indications for it. General surgeons are beginning to think that there is, because they are taking out the testicles to stop the growth of fibroids. I have noticed things among semi-civilized people in which you would see decided waves, but they were so obscure and faint that I must confess I do not know much about it. I would not be at all surprised if there is something akin to it. We have undoubtedly waves in birds, and a tremendous pressure, exudation, and excretion while the molt is going on. Watch a canary and see him go through the molt: it is like a woman going through menstruation. And so it is with the mocking-bird and brown thrush. I think that in future we will find that there are these periodic waves of pressure like everything else—a period of activity and a period of rest—that it is Nature's law after all. As to what the previous speaker said, we have differed a great deal over this subject. I do not believe we have over five ovaries ripe during a year in the average woman, and we have thirteen of these attacks. A woman does not have her Graafian follicle at every menstruation. I have always done laparotomy five days after the menstruation, and it is not in more than one in fifteen that I find the ripe Graafian follicle. I have never seen a case of intermenstrual pain that before I was done with it I did not have to stop the menstrual wave and bring on the menopause. There were five cases. In three of them there were long adhesions, which would be made slack, on which there would be no tension, but when the ovary shrinks the adhesion is put on the stretch.

I have never seen a case of intermenstrual pain where I did not find that something was put on the strain.

Dr. REAMY (of Cincinnati) : I think you said you had never seen a case of intermenstrual pain in which you had been able to accomplish its relief until after you had brought on the menopause? Was that correct?

Dr. JOHNSTONE : I have seen only five, and never saw them cured until the menopause was brought on.

Dr. REAMY : I infer from that statement that Dr. Johnstone means that the pain is never recovered from until the menopause is brought on. From that statement I will have to dissent.

Adjourned until 3 P. M.

Afternoon Session.

The meeting reconvened at 3 P. M., the *President* in the Chair.

AIDS IN OBSTETRIC TEACHING.

By J. CLIFTON EDGAR, M. D., NEW YORK.

(Author's Abstract.)

In his introduction, Dr. Edgar states his conviction that while the best method for a student to learn obstetrics is the personal care of parturient and puerperal women, still much of this experience will prove useless unless he has an intelligent appreciation of his work based upon a previous thorough training in the principles of the subject. It is this training of reason and perception and the aids to it which have largely taken the place of the old theoretical lecture with which the author's attention is occupied. He is a firm believer in the advantage of models "possessing the third dimension of space" over elaborate description and illustration in the form of diagram. The rhachitic pelvis, injuries to the pelvic floor, the relations of the uterus to surrounding parts, are far better understood from casts and paper reproductions than from charts, however well executed. The models are particularly useful in the training of nurses. A further advantage in their use is the fact that they may be kept obstetrically clean, and may be used at the bedside or in the obstetrical clinic. While something has been done in this field, much remains, for example, of uteri of known periods of gestation and of pelvic deformities which, by their interchange, may do not a little to raise the standard of obstetric teaching.

Models are not in any sense to replace bedside instruction; they are purely auxiliaries to instruction in its various forms, and care must be exercised in their use. They undoubtedly lend a new interest to many points otherwise obscure and dry. The natural size of the object should always be reproduced, or a wrong impression may be conveyed. Diagrams, charts, and blackboard illustrations are unsatisfactory and tiresome to the student, and can never be made to impart the practical knowledge obtainable with the aid of a few selected models.

The several varieties of aids to obstetric teaching are for convenience divided into five classes:

I. *Plaster Models*.—As such, these have a very limited field of application on account of weight and brittleness. Plaster is chiefly useful in securing impressions, which are then reproduced in other ways.

II. *Paper Reproductions of Clay and Plaster Models*.—The method of preparation used is that proposed by W. G. Thompson, which is briefly as follows: A clay or plaster model is covered by a layer of small strips of newspaper (two by four) previously moistened. On this single layer are rapidly placed successive coverings of the same paper dipped in glue. In large models, strengtheners—such as wire, gauze, cheese cloth, etc.—are introduced, and the top layer is laid smoothly to give an even surface. It is removed entire or in section, a backing added, and several coats of paint or varnish applied. Webster's frozen sections were reproduced in this way by enlarging photographs of the cuts on tissue paper, modeling through this in clay, and overlaying the paper strips as described. Transverse and sagittal sections and round objects may be modeled in this way, the latter to show the size and shape of the uterus in various stages of pregnancy. If casts can be taken from gravid uteri after death, so much the better, for they can then be exchanged among teachers and museums. A few of the uses to which paper models may be put are to show the height and shape of the fundus and lower uterine segment, placental insertion, physiology and pathology of pregnancy, mesial sections of the uterus, and the curve of the parturient canal.

It is possibly best not to attempt reproduction in paper of any but the grosser frozen sections; a model of uterus and contained ovum was not altogether satisfactory. For such illustrations as much can be accomplished by diagram. Models representing involution, position, and relationships of puerperal uteri from Webster's sections are, however, of use not only in demonstrating the physiology but the

pathology of the puerperium. Rupture of the vagina and the uterus, their relations, and the greater danger of infection when the tear involves the vagina as well as the uterus, may thus be shown.

III. *Composition Models.*—The author uses as a cheap substitute for rubber modelers' and plasterers' composition of glue. Its application seems limited to a series of cervixes in different stages of dilatation. The mixture finally adopted was of Cooper's A1 glue and glycerin, the proportion determined by the flexibility desired.

The glue is soaked in water, the latter being removed by filtration and the glue melted over a water bath. Glycerin is added and the mass boiled to expel the remaining water. The time required depends on the size of the mass and amount of contained water. When ready to pour, the mass should be of thick, creamy consistence. Any desired color of aniline may be added in alcoholic solution. The mold is prepared by taking a negative model of the lower segment of the uterus, for example; this is covered with clay to the required thickness and a core is formed by running in plaster and allowing it to harden. The clay is removed, core and negative mold carefully shellaced, oiled, and fastened together. The glue, not too hot, is then poured in and allowed to cool. It may be removed in six hours.

In case the models shrink and become hard, they may be remelted and fresh glue added. They will then have less tendency to shrink. The lower uterine segment, mechanism of dilatation, with gradual disappearance of the supravaginal part of the cervix, are some of the conditions capable of reproduction in composition. (The author here takes occasion to indicate his preference for bimanual over digital and instrumental dilatation of the os.) The models demonstrate the dangers of ordinary digital and manual dilatation and of breech extraction through an imperfectly dilated os, incomplete extension of the head, etc.

IV. *Miscellaneous Models and Aids.*—These include metal and leather models not classifiable under other heads. The first offered is a vertical mesial section of the bony pelvis in aluminum, mounted by a hand screw on a blackboard, and the whole set on a tripod. There is scarcely an obstetrical or gynecological condition that can not be shown with it in connection with puppets, uteri, and chalk. The complete metal pelvis, mounted on a tripod, has already been described by the author. It is indestructible, adjustable at almost any angle, and fitted with movable sacrum and coccyx.

Chamois-leather models of puerperal uteri do duty in many ways, being made to open. With them the student may be taught to repair

cervical lacerations, curette and pack the cavity. They supply an opportunity for manual training which may never occur to him again until in practice.

The perinæum and pelvic floor should be reproduced in rubber, which is clean and portable. Casts are made from the living subject and rubber models made from them.

V. *Electro-plated Plaster Models*.—For very small objects, where minuteness of detail is required, *e. g.*, the non-pregnant uterus, electro-plated plaster models are recommended. A plaster cast is taken of the specimen, carefully dried and copper-plated. Bone composition and clay may be covered in the same way. Pelvic deformity—a subject usually dry and uninteresting to the student—is brilliantly illustrated by Tramond's series of twenty-four *papier-mâché* models from Paris museums. By copper-plating they are made indestructible, and may be constantly handled. This series is equally valuable to the teacher, practitioner, and surgeon.

Lacerations of the vagina, perinæum, and anterior rectal wall are permanently preserved in this way, the plaster casts being taken from the living subject at first. Proving unsatisfactory later, they were made from artificial lacerations in the cadaver. Sutures may be put in place by a drill afterward.

The paper is most profusely illustrated throughout by half-tones of the specimens, models, and methods described.

DISCUSSION.

DR. A. H. BUCKMASTER : I wish to express my admiration of these beautiful casts, and also to call attention to a very practical method of reproducing casts, not only of obstetrical but of gynæcological material, by the use of paraffin. I think it has some advantages over the method the doctor stated. It is not original with myself. As far as I know, it is a method that has been practiced by the dentists for a number of years. To take casts of the living subject the paraffin can be applied by a fine camel's-hair brush, and if carefully applied it causes the patient very slight pain. It is applied by degrees until the amount is sufficient to make it firm, and then backed up by plaster. Into this paraffin cast the plaster is run, and you have a perfect reproduction of the condition. I made some casts four or five years ago of the vulva, and I think this method would be of the greatest advantage. It reproduces the parts of the living subject in a permanent form, and as it does not shrink, it has, perhaps, some advantages over the method stated by the doctor.

Dr. MURRAY (of New York): We have all been intensely interested in Dr. Edgar's casts of the pelvis. When I was connected with the University and gave cases to the Third Course students to deliver, it seemed to me that the important points were two: First, the size of the pelvis, and second, the size of the child. If you will notice the statistics in Germany, the child weighs about six pounds and a half. In New York, with our more perfect nutrition for the child, due to the nutrition of the mother, and in all our States, we have a child larger than the child that is presented in Italy, in France, or in Germany; that is, our child ordinarily is not six pounds and a half, but seven pounds and a half. We do not have in New York, or in Chicago, or in any of the cities of the Union, these deformed pelvises that we ordinarily see in the Italians, Germans, and French who come here. Why? Because they have had more perfect nutrition: they have had sufficient of limes and phosphates, and their bones are perfectly formed. We sometimes have a pelvis not deformed absolutely, but one deformed relatively; that is, relatively to the child that has got to go through it, and it comes back to the question, How are you going to get that child through that pelvis? We have very seldom a pelvis with a coccyx turned up so that it forms an impediment to the outlet. But we have a large child. And so I say that if we would have absolute knowledge in the case of the students of medicine, in the case of the practitioner, we must have an exact knowledge of how the child that is to pass through the pelvis is to get through, and what the characteristics of that pelvis are. Now, how are we to determine? A student may examine by a plaster cast; he may learn how to do a version; he may learn how to do an application of forceps, and the different characteristics of the pelvis. Dr. Edgar has found a very happy way of making those different deformities of the pelvis cognizant to the student. He gets to know the deformed pelvis, the oblique pelvis, the pelvis contracted in the anterior straits, and he knows if there is a diameter of two inches and three quarters, yet the whole on the anterior part is perfectly abundant; he knows also that if he examines and determines that the child's head, as he feels it above the pubes, is enlarged, he knows he has got to do a symphyseotomy or a Cæsarean section, and if he had introduced the forceps to pull that child down, that although he would have delivered the child it would have been a dead child. And that is why I congratulate Dr. Edgar.

Dr. KING (of Washington): In the evolution or development of any science and in the teaching of any art new necessities are con-

stantly arising ; and the necessity has arisen in the teaching of obstetrics, in the absence of clinical teaching, to furnish a substitute. It is very fortunate that when these necessities arise there also arises occasionally a man of originality and intelligence to grapple with this new necessity and provide a means of overcoming it. Dr. Edgar is the man who, with his intelligence and originality, has arisen in this country to furnish a substitute for the necessity of clinical teaching, and he has done it in a most admirable way. In the absence of bedside teaching—which, after all, is the only method of teaching obstetrics—this substitute of models is the best. It is of the greatest importance that the student's finger should be educated, and if Dr. Edgar would exercise his ingenuity I think he could devise a model which every student would buy as he buys a skeleton or anatomy, a device containing a model of a head, susceptible of being moved around in every direction, and having the same anatomical position as the foetal head, which the student might carry with him to his room and educate his fingers every morning just as he would his muscles. Then again, in a large lecture room, like some of those here in New York, where there are seven or eight hundred matriculants, how little each can see of the demonstration of labor on a model like that ! I think if Dr. Edgar would again exercise his originality and ingenuity he might devise a very large pelvis—eight to ten times as big as that—and hire a greased newsboy and put him through the process of labor. (Laughter.) It is a lamentable fact that while most universities are so largely endowed in most of their departments, in nearly all of them the medical department is the very last to receive endowments. I wish this Society would make itself heard in accentuating the necessity for money in the establishment of maternity hospitals for clinical teaching. Until we get that we can not compete with the great schools of Europe, where actual clinical teaching is provided.

Dr. REYNOLDS (of Boston) : I have known for some years that Dr. Edgar was doing banner work for all of us in this direction, and I have been extremely interested to see his collection of models. There is not much that one can say in the discussion of such a paper, but I sincerely hope Dr. Edgar is going to elaborate his system of models in the direction of providing students with more and more exact exhibitions of the mechanism of labor. I think it is far better for us to attempt to graduate our classes with a concise and definite knowledge of one method of dealing with an emergency rather than to teach the pros and cons and wherefores without end, and I believe

if we are to deal with abnormal labor promptly and efficiently, that a large portion of the time devoted to obstetrics must be given to careful drill in the mechanics which underlie the whole subject, without which there is no possibility of its comprehension. I believe that Dr. Edgar is showing us the way to teach students the mechanism, for I believe with him most heartily that there is no possibility of teaching subjects of three dimensions by the use of one or two dimensions or by mere words.

Dr. E. P. DAVIS: I take great pleasure in expressing my admiration of Dr. Edgar's models. We are more or less familiar with these *papier-maché* casts, but to my mind the two best things that Dr. Edgar has given us are this tripod with this aluminum half-pelvis, and also his method of posture illustration. If I mistake not, he had not done himself full justice in the idea of the tripod, as he used a pelvis of metal upon the tripod, in which he places the foetus in the position of normal labor when illustrating his lectures, so that this is but a part of his work in that line. There is no better way, certainly, of teaching the mechanism of labor than by giving the student a pelvis and head of normal dimensions, and educating his fingers to recognize the relative proportion of the one to the other. When placed upon his own resources he may be without the means of accurate measurement, but the finger that can recognize the fact that the head does not engage in the brim of the pelvis is the safe finger for obstetric practice, and that can be taught by placing a normal head in a deformed pelvis, and can be thus placed upon the brain of the student. That is the one thing which the obstetrical student must know, or he will apply forceps, to the disaster of mother and child. Now, there remains for Dr. Edgar and for obstetric teachers a further advance of a most interesting nature, and that lies in the Röntgen-ray photographs of the living pelvis and uterus. The time-exposure now necessary to permeate the body has been reduced to one minute, and the only element that is baffling us lies in the fact that the foetus is in almost constant motion, and it is yet impossible to radiograph a moving body. When the time of exposure shall have been reduced sufficiently so that the foetal movement shall offer no serious obstacle to the reproduction of such an illustration, Dr. Edgar will supplement his most admirable work with further graphic illustrations. Personally, I am under great obligations to him for what he has shown me.

Dr. EDGAR (in closing): In regard to what Dr. Buckmaster said, I should imagine that paraffin would do very well, but in my hands I have not had the same success with it as with plaster. The plaster

certainly has taken in all the depressions and elevations in a satisfactory manner. In reply to Dr. Murray, I do not know whether he misunderstood the paper at all, but I did not mean to imply that the models and methods referred to were to take the place of clinical instruction, for they are only meant as adjuncts and aids to such instruction. I want to thank Dr. King for his kind words. I may say that there are two periods in the student's career when these adjuncts come in—in his second year, when he is preparing for his maternity service, and in his maternity service, when he has seen clinics and is going to cases—in order to illustrate more graphically the parts that are out of sight. In regard to the suggestion of Dr. King, I would say that I have such a pelvis, which is three times the size of this, but I could not get it into the cab. I have not yet secured the newsboy. I would also say to him that we do have an abundance of clinical teaching here in New York, that the students from the hospitals are required now to take a two weeks' course and confine a number of cases of labor, and that they take it in the most practical way imaginable—that is, they actually confine the cases; they live in the hospital during the intervals between the confinements, and they attend the operations or clinics that are going on in the institution. Primarily the *papier-maché* models were made with an idea of illustrating more definitely the attitude, the posture of the child. I did not refer to the full metal pelvis, of which Dr. Davis so kindly spoke, because it had already been brought before the New York Obstetrical Society.

Dr. KING: I would like to inquire the entire cost of your apparatus—that is, everything shown this afternoon.

Dr. EDGAR: That is rather a difficult question. The pelvis was made by Tramond, in Paris, at forty francs, and the plating cost \$1.10. These paper casts we made.

I. TWO PREGNANCIES FOLLOWING REMOVAL OF BOTH OVARIES AND TUBES. II. TWO PECULIAR CASES OF EXTRA-UTERINE PREGNANCY. III. EFFECT OF HYSTERECTOMY UPON THE VAGINA.

BY S. C. GORDON, M. D., PORTLAND, ME.

(See page 28.)

DOUBLE OVARIOTOMY FOLLOWED BY PREGNANCY AND DELIVERY AT TERM.

BY R. STANSBURY SUTTON, M. D., PITTSBURG.

(See page 26.)

DISCUSSION.

Dr. SMITH: I wish to submit the following case in this connection: Mrs. N., twenty-eight years old, mother of two children, under care for dysmenorrhœa, etc., and almost constant pain in the ovarian region. The treatment included all the measures usually employed in such cases, but seemed to afford her very little, if any, relief. Advised removal of one or both ovaries and tubes, which was readily consented to, and all the customary preparations were made, but her courage failed her, and while the nurse's attention was attracted elsewhere she put on her clothes and made her way home. Two weeks later she appeared at the private hospital, asking forgiveness and that we operate on her, as the pain was unendurable. Two days later she was operated upon. She had her period while she was away, and also intercourse with her husband, but there was no evidence about the uterus or ovaries to indicate she was pregnant. The tubes were undergoing a process of closing up, the left one being nearly closed at the fimbriated end. The right one also was greatly thickened. As it was very important in her case that she should be cured, I removed both ovaries and tubes. She made a rapid recovery, saying she was now free from pain. She went home at the end of four weeks, but at my request returned in one month for examination, when I found the uterus considerably enlarged, and her breasts were enlarging. She was delivered at two hundred and seventy-five days after her last period, and two hundred and sixty-seven days after operation. The baby was the finest she had had, and she was able to nurse it for more than nine months, when she was ordered to wean it in order that she might undergo a second operation for retroversus prolapsus. I presume she conceived immediately after her menstrua-

tion, and that the ovum had passed into the uterus a day or two before I removed the appendages.

Dr. CUSHING (of Boston) : I have a case which in many respects resembles the last one reported, and possesses some medico-legal interest. I was called a year and a half ago to see a lady who had violent and severe hæmorrhages and high temperature. It was supposed there might be an extra-uterine pregnancy. I found a mass on the left, and that the husband had gonorrhœa. I thought the woman's life was in danger. The uterus was somewhat enlarged. I operated the next day. Found the left tube enlarged, with adhesions all around it and pus in it, and a very virulent condition. The right tube did not seem to be so bad. I removed the left tube and ovary, the right ovary being entirely healthy, and the right tube only diseased apparently at the upper end. Wishing to be conservative, having recently read the paper of Dr. Polk on the subject, I saved the left ovary and half the left tube, tying the left tube with a light cat-gut ligature. The case recovered perfectly and five months after aborted, to the great wrath of the husband and other medical advisers, who were not slow to advise him that it was a mistaken diagnosis and that there was no need of an operation. He declined to pay his bill, on the ground that all hope of posterity was taken away, utterly oblivious of the fact of his own condition and the consequences to him if the question should ever come to a decision at law. The point of interest in this case is the fact of a pregnancy already existing, as near as I could figure it, about three weeks or a month at the time of operation. Apparently that pregnancy had served to excite an old gonorrhœal condition in the tube, for the woman had had attacks of pelvic peritonitis several times, and the gonorrhœal condition of her husband was of some years' standing. Incidentally it may be said that if the operation had been done by vaginal hysterectomy, the question never would have arisen. The uterus was somewhat large, but not larger than it often is in cases of gonorrhœal infection of the tube. It was such a case as might properly have had ablation of the uterus from above, and in saving the tube and ovary and uterus I unwittingly became an object of criticism, whereas if I had removed the whole uterus and everything, I should have met no blame. In regard to what Dr. Gordon said, I once had a case of abdominal pregnancy where the foetus lay in the abdomen, and the placenta was attached part in the tube which opened up into a coping; the lower half of the placenta stuck in it. I had intentionally waited a month after all signs of life of the child had ceased, hoping that the placenta

would be loose and could be removed without hæmorrhage. It was some years ago, and I only saw the case at the ninth month, and did not feel like taking chances on it at that time. As to what Dr. Gordon said in regard to the pedicle, I have had a good deal of experience with hysterectomy, both vaginal and by removal of the whole uterus from above, and leaving a part of the cervix. It is not a mistake to suppose that the vagina is shortened by the removal of the whole of the uterus. Seen from above, it is evident that the uterus comes out of an opening high up on the vagina. Seen from below, the vagina is all there. You only need to remove the uterus out of it. Practically, the woman's vagina is in functional condition, without any injury at all, whatever way the operation is done. The principal thing is to be sure that there is no inflammatory trouble afterward, and for my own part I would rather remove the whole cervix in doing an abdominal operation. I have not found that the stump, after tying the uterine arteries, is so entirely free from hæmorrhage that it makes it any quicker to finish the operation by leaving a little of the stump than to take the whole out and put a strong suture on each side, after Dr. Polk's method.

The PRESIDENT: In discussing the question it is as well to bear in mind that the point raised by Dr. Laphorne Smith and by Dr. Cushing differs essentially from those raised by Dr. Gordon, in the first part of his paper, and by Dr. Sutton.

Dr. ENGELMANN: It seems to me that in the brief hint given by the President lies the keynote of interest in these cases. They have appeared, as Dr. Sutton says, as unique occurrences, but now we want a precise record, as a record of the conditions of the operation, because they bear strongly on the question of conservative surgery: How much can be removed, and what may we expect from the tissue which remains? I published a case, I think in 1882, in which a large tumor was removed on one side with a tube on the left, and on the right a small cyst the size of an orange, with the ovarian stroma, with the ovary partially preserved underneath. That tube was left in there. The ligature evidently did not completely clear the ovarian tissue. I presumed it did, and that the ovarian tissue was puckered in the ligature so that beyond it no ovarian tissue was left. That specimen I have, and it still shows in the pedicle that was formed some ovarian tissue upon its cut surface, so that in this pelvis undoubtedly some ovarian tissue was left. The patient was thirty-two years of age and had five children, the youngest two and a half years old. Her menstruation was almost perfectly regular after the oper-

ation. It was slight for a few months, then normal, and within a year or so she conceived and carried a child to full term. I published that in connection with a number of cases of apparently normal menstruation after removal of both ovaries. At the same time Prof. Schotts published a case in which a large tumor was removed from one side (the left) and a diseased ovary from the right side; he was attempting to perform Battey's operation, and, instead of ligating, I think he sewed around and evidently included some of the tube in one of these sutures. That patient also began to menstruate, suffering agonies at each period, until some three or four months afterward an abscess was opened and matters began to regulate themselves. It was a girl, who when she had thoroughly recovered married and bore a child. Schröder was among the first who attempted this conservative surgery on the ovary, believing that if he left some of the ovarian stroma, menstruation would continue and the functions progress normally. I think that of the five first experimental cases but one or two succeeded. The cases here shown seem to prove at least that the smallest particle of ovarian stroma is likely to continue the function, and that if the tube is patent pregnancy is likely to follow. It is not only the interest in the general fact that pregnancy occurs after double ovariectomy, but precisely the nature of the conditions, what the condition of the ovary and tube was, how it was left and what was left, that comprise what we want to know at the present time in order to guide our conservative operation in accordance with these facts.

Dr. A. PALMER DUDLEY (of New York): It is well known to our President and many of the gentlemen here that I am particularly interested in this subject of conservative ovarian and tubal surgery. I do not propose to take the time of the Society only in so far as I am able to record facts that have resulted from that conservative work during the past two or three years, and also to state the history of a case where pregnancy occurred after a hysterectomy. Following in the footsteps of our honored President, I began conservative work on the ovaries and tubes four or five years ago, and, so far as I have been able, have recorded the cases and kept track of them ever since. I am able to-day to state that I have records of three living children and three women now pregnant, where I have removed half the tubes and half the ovary. I have picked those ovaries and tubes out of a bed of plastic lymph, the result of repeated attacks of peritonitis. I have seen within the hour at my clinic a patient who delivered a live child three months ago on whom I made laparotomy, removed one

tube and ovary, half of the opposite ovary, and did hysterorrhaphy. The patient became pregnant, carried a child to full term, and delivered. Dr. Gordon also was present and witnessed an operation two years ago in my sanitarium, when we removed an ovarian cyst containing blood, and we treated the opposite ovary by removing the cyst from it and patching up the tube, putting the uterus in position. The doctor left for his home with the idea, I feel sure, that I had simply left a uterus, tubes, and ovaries which should have been removed. Within the past two weeks I have had a letter from that patient, saying that she is now three and a half months pregnant. This morning I had a letter from a patient in the neighborhood of Boston upon whom I performed a laparotomy. I removed the right ovary and tube; dug the left ovary and tube out of a bed of lymph. The tube was twisted upon itself. The ovary was not larger than a filbert, was cerotic, intensely hard, but I left it because of the patient's condition. This morning she reports to me that she will be confined the third week in August. There are six cases which show the result of conservative surgery on the ovaries and tubes. In some of these cases I bisected the ovary. I have the notes of one case operated on by a German whose name I have forgotten, who gives a succinct report of his case, where he made a vaginal hysterectomy, leaving the ovaries and tubes, and brought the latter down into the vagina. The patient recovered. She impregnated in the tube and carried the ovum six weeks. She then consulted him, and he found the condition, curetted the ovum from the tube, and under microscopic examination got chorionic membrane. I say that if that is not sufficient evidence to warrant us in traveling along this path of conservative surgery on ovaries and tubes, I would like to know what is. I believe one reason for it in this country is the use of catgut as a ligature. It will hold the uterus for the space of twenty-four hours, which is sufficiently long to prevent hæmorrhage; and if any portion of the ovary is left within the pelvic cavity, then the function of the latter, together with the tube, can be carried on, and pregnancy may be the result.

Dr. ARTHUR W. JOHNSTONE (of Cincinnati): I have listened carefully to this discussion, and there is one thing that no one has mentioned, and that is that accessory ostia do exist to tubes. If you have noticed your specimens you have seen more than one opening to tubes. I saw one that had five. That is one route by which this pregnancy may occur—a secondary opening back of your ligature. Another point that I wish to speak of is that the scrap of ovary left does not necessarily keep menstruation going. I have left scraps of

ovaries time and again. In the hurry of the operation, if the patient is doing badly, if you are not careful you will leave a piece of ovary. I have done it time and again, as the examination of the specimens afterward proved. But if your ligature is close up to the horn of the uterus, so as to crush the sympathetic system as it goes into the uterus, there is no menstruation. The pregnancy may have occurred in one of two ways: it may be that a piece of ovarian tissue was left, or it may be a little scrap which was never with the other ovary—what we call the third ovary—little scraps that in the development have got separated and are not in the same bunch. Then another means is what has been suggested: that by some means the ligated tube has come open again. I think it is possible where catgut is used. Always when I attempt to stop the menopause that is what I go after—to get close up to the horn of the uterus, so as to be sure to crush every bit of the sympathetic system. In cases of retroversion it has been my habit, which has served my purpose, to go behind the round ligament and include all that in the ligature. If you include the knuckle (?) of the round ligament, you can be sure that she will never menstruate, no matter if you leave both ovaries there.

Dr. GORDON (in closing): I will begin where the last speaker left off. I have one case in mind of a doctor's wife, upon whom I made double ovariectomy, and she still continued to menstruate. Two years afterward I made hysterectomy by the Dudley-Baer-Geffe operator, leaving the cervix, and she still continued to menstruate. Now, I know the sympathetic points were removed, and I would like Dr. Johnstone to explain that. She still menstruates. When I am in that neighborhood I am going to remove the rest of the cervix. This may be a peculiarity of the Maine woman, but I think not. I think there are certain things that are not dreamed of in our philosophy. I know that I removed the fundus of that uterus, and I did it by the operation by which I always do hysterectomy, by over-and-over suture, running down the broad ligament, and I know that point was removed, yet she is just as regular as she ever was. In regard to this conservative surgery, I believe in it to a certain extent. I know that this woman that I operated upon, who conceived afterward, had not been pregnant for several years before; that she had been an invalid; that there had been no special means to prevent her becoming pregnant; and I believe that she never would have become pregnant as long as these ovaries, such as they were, remained. Now, I have no doubt that removing the diseased portion, even if there was only one ovum left, rendered that woman fertile, when she was sterile before. So

that I have no question that in many of these cases we can remove very largely the diseased portion and yet leave a certain amount, and have our patients in very good condition. And yet I can not go quite so far as some of these men who are so-called conservative. I have been obliged in some of these cases to operate a second time where I attempted conservative surgery. Perhaps I did not do enough, but, at all events, it seems to me that we can safely do certain things and trust to Nature to do the rest.

Dr. SUTTON (in closing): Dr. Arthur Johnstone has anticipated my theory of the occurrence of pregnancy in the case I reported. The tumors in my case were thoroughly removed and one stump was burned off with the cautery; I do not think any ova came from that side; but the cautery would not get hot, and on the other side I dissected the pedicle with the scissors. I think the lumen of the tube was not destroyed by the ligature subsequently. It was not burned at the end, and I think it more than probable that there was a patch of ovarian tissue in that stump which was disconnected with the ovary proper. I think the ovariectomy was complete.

Now, in reference to this question of menstruation, I agree with Dr. Johnstone that if you cut the telegraph where that goes to the endometrium you stop the menstruation. I think that has been proved. In regard to operations in the presence of pregnancy, we are all liable to do that, because women are not always truthful; they are more truthful, as a rule, than men, but some of them will lie. A few years ago a woman, who had been a widow for ten years, was brought to the hospital. She had attacks of ovarian pain. The doctors got tired of her, and sent her into the hospital to have her ovaries removed. She said she had menstruated two weeks before. I took her ovaries and tubes out, and in just nine months, less forty days, she gave birth to twins. We are all liable to get into that sort of a box, provided people do not tell us the truth. We do not get much credit for that sort of work. Now, in regard to conservative surgery, I believe in it. I believe we take out too many ovaries. I think it is possible often to save a part of an ovary and tube and give the woman a chance, and I am not quite sure that we will not, in a few years probably, find one sister lending another sister a piece of an ovary, and a good many other things. (Laughter.)

Adjourned.

SECOND DAY.

May 27, 1896.

The *President* in the Chair.

The committee appointed at yesterday's session reported the following resolution :

Resolved, That the Fellows of the American Gynæcological Society have heard with great sorrow of the severe affliction sustained by our much-loved Fellow, Dr. H. P. C. Wilson, and wish to express to him and his family our sincere sympathy. For the first time since our organization we miss his wise words and genial presence from our meeting. We desire to convey to him assurances of our good will, and to express the hope that next year he will be fully restored in strength and spirits. On motion, the resolution was unanimously adopted.

THE PRESIDENT'S ADDRESS.

A Retrospect of Twenty-one Years in Gynæcology and Obstetrics.

BY WILLIAM M. POLK, M. D., NEW YORK.

(Author's Abstract.)

The President gracefully referred to the honor conferred upon him in being permitted to address the American Gynæcological Society as its President upon its twenty-first anniversary—a Society which, though attaining its majority on this occasion, yet “sprang, like Minerva Medica, full armed and capped from the busy brain of that wise and active ambition which has ever since shaped its successful and beneficent course.”

In the retrospect of these twenty-one years he referred, first, to the revolt against the old accepted theory of inflammation, which had already received the inspiration of Pasteur's work before that date, and to the keen interest taken by this Society in the subject, owing to its intimate relation to that most sensitive of all so-called “vital spots,” the peritoneal area, because of its ill reaction to inflammation after interference with the uterus, investing operations on that latter organ with danger that terrorized all who approached it. “The patient labor of bacteriology has permitted you, above all men, not merely to share, but to lead in the triumphant march of modern surgery.”

Shortly before the organization of this Society the field of gynæ-

cology was dominated by the cervix, so that their compeers in other fields of surgery asserted that the "sign of the gynecologist was but a cylindrical speculum and a stick of nitrate of silver."

"But," he said, "it remained for a leader in this Association to unfold the secrets of the lesions, to establish their causes, to indicate their true relation to coexistent disorders, how best to cure, and in this elucidation not only lift what opprobrium had attached to the exclusive concern by so many with the cervix, but demonstrated that germ of truth so often hidden in the biting word, and whose fullness so often pulls its fangs; for lesions of the cervix are far reaching, as the labor of this man has forever proved; and yet he marked their limitation, and in doing so has met with fellow-workers tracing boundaries in other portions of this prolific field, and he and they have so enlarged, have so elevated its plane, that the scoffer lost in admiration turns himself to imitation, that sincerest form of flattery. It is difficult to overestimate the value of Emmet's work, but in this field we can, at least, approximate it. Differentiation and classification are accomplished facts, and a rational and successful treatment has been inaugurated. But the influence of his work did not cease even here; it went further, and bringing home to us the major causes, it has done that best of all—provided prophylaxis. In these days of accepted plastic surgery of the cervix we scarcely realize the wearying routine of treatment to which these cases were subjected, the endless repetition of that 'local treatment' which, after all, left perhaps a scarred, contracted structure, cured to the uninitiated eye yet suffering in its depths a change in connective tissue and glandular elements, themselves the pivot of continuing symptoms which, in despair, the baffled attendant set down to conditions far outside the field whereon he had labored, as he thought, so well; and now how changed is all this! Commencing with the parturient act, we mark the beneficent influence of this man's work throughout the life of every mother. Note the consideration now bestowed upon the cervical segment of the uterus in labor; the care, if torn, with which it is guarded from the influence of sepsis—a care mainly dictated, no doubt, by the need for immediate protection from the dangers of a general sepsis, but also by what we now know to be the local, as distinct from the constitutional, action of such a process upon the lacerated surfaces. What woman is now declared well after parturition before the effects of labor upon the cervix have been studied, and, if need require, remedied; and if she comes to us a sufferer because of lack of this care and treatment, is not our task made easy by what this man has taught us? But

great as is this boon, there is another which calls for grateful recognition from every woman compelled to endure the pangs of powerless labor. It is his insistence upon the early use of forceps, not merely to end the strain of unsuccessful effort, but to protect her tissues from that necrotic process which, coming from the long sustained pressure of the foetal head, leads direct to fistula of bladder or rectum. Lesions long set down to the use of the obstetric forceps are now known to result more often from delay in use. It was a high privilege to demonstrate and preach such truths; it is more than a privilege to follow such a leader."

Reference was next made to the great advance in the diagnosis of cystic disease by the use of direct light conveyed or reflected to within the bladder along a natural channel. Kolb and Pawlik have shed new light upon the researches of Simon, Emmet, and Bozeman in diseases of the ureters and pelvis of the kidney. The relations existing between floating and displaced kidneys on the one hand, and menstruation and digestive processes on the other, were scarcely appreciated twenty-one years ago. The benefit derived from abdominal supports attracted attention to the pelvic organs, until at last anchoring the kidney and supporting the other viscera has brought relief to those heretofore hopeless sufferers. The question of retrodisplacement of the uterus is one of prolific discussion.

"So active has been the effort in surgery's behalf, more than one method has been advanced. And in this very fact lies much of the skepticism which still remains. Out of it has grown a spirit of doubt touching all the surgical methods of relief for retrodisplacements. Before we can determine, then, this question's relation to the treatment of retrodisplacements, we must first settle which of the several surgical plans of treatment proposed surpasses all other surgical plans in its results, and then we can quickly decide as between the mechanical and the surgical."

"Vaginal *versus* Abdominal Section" is not a new question. The causes which led to the abandonment of vaginal section for a time lay in the greater mortality of the vaginal route, due to the fact that our predecessors dealt chiefly with conditions of greater magnitude, which had, of necessity, to be dealt with from above. This led to the rapid technical perfection of laparotomy which eclipsed vaginal section. The more intimate knowledge of pelvic disease thus obtained has prepared the way for success from below.

Referring to the immense advantages obtained from the knowledge of the causes of puerperal infection, he says :

"The spirit of investigation has penetrated the secret of puerperal infection and made safe the path which leads through parturition to motherhood. In all of this you have borne a part which should be cause for self-congratulation to every member of the Society. If asked to place my finger upon the one thing of all modern achievement which touches most nearly man's welfare, his glory, and his divine attributes, I must place it upon the discovery which has freed the most sacred act of Nature from the terrors of childbed fever."

From the same spirit of enterprise which placed on a sure basis intra-uterine treatment of the septic puerperal uterus has come the extension of intra-uterine treatment to perimetritis, opening an avenue of hope for many heretofore doomed to invalidism or mutilation.

In concluding, Dr. Polk said :

"As out of a loyal devotion to one's ancestry, a jealous care of its fair name, a just appreciation of its merits, a wise appropriation of its labors, comes a strength of character upon which the best of superstructures may be erected, from whence new glories may emanate, so let it be with us. Ever loyal to our forbears, we will look to them before we go elsewhere for inspiration and for guidance; and to those of them now left to us, pay honor in ever reminding them of our obligations to their wisdom, their courage, and their fidelity to the trust which they have passed to us.

"Yes, gentlemen of the American Gynecological Society, they are most noble models, and in honoring them we give ourselves the highest of all honor."

THE TECHNIQUE OF VAGINAL HYSTERECTOMY.

BY PAUL SEGOND, M. D., PARIS, FRANCE.

(Author's Abstract.)

The subject was taken up in a manner to lay particular stress upon the usual complications resulting from faulty technique. Regarding hæmorrhage, the doctor mentioned that it is due principally to two causes—namely, poor instruments, or operating on puerperal cases in which the results are sometimes deplorable, as the tissues are so friable that the clamps do not hold but tear out.

Concerning injuries of the bladder, this is usually caused by too great haste in reaching the peritoneal cavity anterior to the uterus and sometimes by forcibly using a long retractor between the bladder and the body of the uterus. This same instrument, if pushed into

the anterior peritoneal pouch, sometimes has a tendency to bring the ureters too close together and force them into the field, where they may be caught by a clamp intended to hold the vessels only. To obviate this the doctor recommends making an incision on each side of the middle of the cervix and parallel to its axis, and, after joining these by a cross cut anteriorly very low, making a very careful dissection of the anterior flap thus formed to a point quite high up on the anterior uterine wall, until it is certain the bladder and ureters are pushed up out of the field of this stage of the operation. No attention is to be paid to the opening of the anterior pouch of the peritonæum or to the hæmorrhage. Where the diagnosis is not absolute, the posterior *cul-de-sac* is opened first, but often it is left until the anterior dissection of the bladder is properly effected. Posteriorly the cross cut is also made low on the cervix and unites the lateral incisions first mentioned. A clamp being now placed so as to include the uterine artery, the cervix is liberated and exsected, care being taken to hold the body of the organ well down, before removing the cervix, by a volsella placed higher up. If the uterus can be dragged down sufficiently, its body is slowly incised in the median line, dividing the whole uterus in two, if found most convenient, each half being now dealt with separately. When the uterus is well down into the vagina, a clamp is placed from above upon the ovarian artery and close to the uterus, after which the latter is exsected if all intervening structures have been compressed by the hæmostatic forceps.

By operating in this manner Dr. Segond has only wounded the ureters twice in over six hundred hysterectomies. Sepsis, he said, could not be always prevented, but is not as frequent as if the same cases were operated abdominally. The ovaries and diseased tubes should next be sought out and brought down into the vagina and clamped, all the work being done in plain sight. The only portion of the operation which is not visible is the separation of the adhesions with the fingers above, when the pus sacs or adherent tubes are too high. Peculiarities of certain cases may demand a variation in the technique. A large uterus may need to be removed in sections, or its division in two halves may be all that is necessary. A small uterus may be taken out whole after preliminary clamping of the broad ligaments. Malignant disease of this organ is better operated abdominally, or by the combined operation. As regards the *morcellement* of fibroids, the uterus may have to be removed first, or the tumor first, or both simultaneously. The method to be pursued will depend on the relation of the tumor to the body of the womb. All the

operations devised, as well as all the instruments used, are but slightly different from the original methods of Péan, to whom all credit should be given for this most important innovation of former work.

THE RELATIVE MERITS OF TOTAL OR PARTIAL
HYSTERECTOMY FOR CANCER OF THE
CERVIX BY ORDINARY METHODS,
AND SUPRAVAGINAL EXCISION
BY GALVANIC CAUTERY.

BY JOHN BYRNE, M. D., BROOKLYN.

(See page 32.)

DISCUSSION on the papers of the PRESIDENT, Dr. SECOND and Dr. BYRNE.

The PRESIDENT: The matter as presented to you in brief is simply this—the broad question as to the advantages of the abdominal or vaginal route in suppurative diseases and of the two routes in dealing with fibroid diseases, and, as presented by Dr. Byrne, the advantage of vaginal hysterectomy in carcinoma of the cervix.

Dr. SUTTON: Do I understand that this discussion involves also vaginal hysterectomy for fibroids?

The PRESIDENT: So I said.

Dr. SUTTON: Vaginal hysterectomy for cancer, as you all know, was revived by De Longenbeck. The uterus which he removed *per vaginam* for supposed cancer, in 1813, remained bottled up in the museum at Catlo until recent times, when it was examined and found that it was not cancer. Now, I am convinced, from the history of my own cases, that occasionally we believe that we have before us a very bad form of cancer of the cervix when cancer does not exist in that cervix. It is my experience that where we have cancer beyond a doubt in the cervix, the disease recurs at a comparatively early period. I now make it a rule to harden and cut every specimen, and to know positively whether I am dealing with cancer of the uterus or some other disease which simulates it. The question of ligature or cautery must turn largely upon the pathology. If you have true cancer, I question very much whether it makes much difference whether you use the cautery or ligature, for recurrence will be the rule in the operations of this kind where it is done late. I have an objection to the use of the galvanic cautery, which perhaps would not apply to Dr. Byrne, because he has had a lifelong experience with it, and that

is, that in using the galvanic cautery the knife is covered up with the albuminate, and flesh is a poor conductor of heat, which interferes with the heat in the knife and makes it a very tedious process. To some extent the same objection will apply, but not so much so, to the platinum cautery, which I have found of the greatest possible assistance in total vaginal extirpation. I fancy you can do almost as much with it, and more rapidly, as with the galvanic cautery. In reference to the question of extirpation of fibroids through the vagina, I must confess that my views have changed a little in the last few years. Whether I am to be brought back to where I stood two years ago or not I do not know, but I am so thoroughly convinced of the superiority of the ease of accomplishment of the Pryor or Baer operation for large fibroids that I do not think I could be induced to give it up for *morcellement* by the vagina. With small fibroids it is a different matter. Two years ago I was ready to take out a uterus with a small fibroid if the symptoms were gross, removing the uterus entire with its annexa, and the fibroid by the vagina. To-day I would hesitate, and would do an anterior colpotomy where it was possible, expose the fibroid, and, if it was possible, enucleate it, closing the wound with catgut, and return the uterus to the pelvic cavity.

Dr. JANVRIN: The paper of Dr. Byrne applies simply to cancer of the cervix, and I believe no statistics can be made which give proper credit to the two sides even in cases of vaginal hysterectomy, unless we apply it in conjunction with his paper to cases which exist simply within the cervix. My own experience shows that in about one quarter of the cases of cancer of the uterus the disease begins in the cervix. That, of course, would bar from this discussion the other three quarters. In those cases the point comes up, Which is the better operation, to perform a vaginal hysterectomy *in toto*, or to perform Dr. Byrne's operation? I believe that is the only point in the discussion of this paper presented by Dr. Byrne. Only statistics can show what the results are. I am not aware that any one as yet has prepared statistics of vaginal hysterectomy for cancer of the cervix—that is, cancer beginning in the cervix. Dr. Byrne has included, I think, in his comparisons statistics of operations not only on the cervix but the body, independent one of the other, or of the two combined. I may be mistaken in that—am I?

Dr. BYRNE: Yes, sir.

Dr. JANVRIN: At any rate, that is the point which we should cling to. In my experience with vaginal hysterectomy (about sixty cases) I have met with sixteen in which the disease began in and was con-

fined to the cervix or had progressed from there primarily into the body or had progressed from that point down on to the vaginal wall. This winter I read a paper before the County Medical Association giving the results of my operations in those sixteen cases, the result being that out of the sixteen cases thirty-three and a third per cent., ranging back from three or four months to twelve years, have been absolutely cured. The other points in the statistics, of course, are as to those which died. Three of the cases died. They were among my earliest operations, when I was doing the operation without having instruction from any one else. Aside from those three deaths which occurred during the first sixteen, I have had no deaths in all my vaginal hysterectomies. Therefore, limiting it absolutely to cancers starting in the cervix, thirty-three and a third per cent. are alive after three and a half years and some dating back ten years. As to the point of pain after removal of the uterus, even when it returns my experience is different from Dr. Byrne's. The amount of pain in my experience has been little—very little indeed compared with the pain and the suffering and the offensive discharge which before existed.

Dr. WATHEN : I have had the pleasure of seeing Dr. Segond perform three vaginal hysterectomies for diseased annexa in the past two days, and was more impressed with the simplicity of his methods than with anything else. The fact of his not using more than one retractor at any time, except after the completion of the operation in order that he might view the wounded surfaces so as to control the hæmorrhage, is, I think, to be approved by all operators. I believe that the use of retractors has caused injuries in these operations, and that there is never, with the fewest possible exceptions, any use for more than one retractor at a time, and that many of these operations may be completed more easily without any retractor at all. I am sure I perform the operation about as often without as with a retractor. Vaginal hysterectomy has attracted our attention to a very important surgical procedure that I believe will be of great value in the future—the conservative method of dealing with disease in the vagina, preventing serious complications that afterward require dangerous operations and may even cause the woman to lose her life, especially those operations where we drain through Douglas' sac or by opening the folds of the broad ligament when the infection is in the cellular structure, draining out these cases so as to prevent further extension of the infection from the uterus. Further, I believe that in many instances where but one side is involved we can remove the diseased tube and ovary through the vagina either by opening

posteriorly or anteriorly as easily as we can through the abdominal wall, with less danger, with practically no mutilation, and with our patient in a few days able to be out of bed, and within a few weeks as if no operation had been performed at all. So I think the greatest field in this work is conservative work, saving the uterus and saving the one ovary or tube, and preventing the further extension of septic disease that involves the peritonæum or cellular structure.

Dr. KELLY : I am interested to see that the vaginal sectionists abandon the conservative field in the treatment of the ovaries and tubes and fibroid tumors. To my mind there is a tendency to be entirely too radical on the part of those who resort to the vaginal operation. They are not able to do as we are doing by the abdominal incision—to decide whether structures can be saved or not, whether it will not be wise simply to puncture and treat the case by simple drainage without any exsection. In the matter of small fibroids, I enucleated in a recent case as many as nine, by seven separate incisions which were sewed up, a case which by the vaginal operation would necessarily have been removed. In the matter of pelvic abscesses I have come to the drainage of the vagina without removal of the uterus, and insist I will get as good results by a posterior puncture back of the cervix. I have had fifty-six cases in this way without a death, with a complete recovery of over eighty per cent. Several had to be operated on by abdominal operation afterward. We must abandon the vaginal field for carcinoma, for the reason that you can not as effectively treat carcinoma by the vagina as you can by opening the abdomen, dissecting out the ureters, throwing them up like flaps to one side, and cleaning the pelvic tissue out to the abdominal wall. We treat the same class of cases much more effectively by the abdomen. If these matters are abandoned it leaves for the vaginal route but a narrow field. Every one has had experience that teaches us of the bad results secured by men who are trying to walk in the same path as a few men who are very skilled. In new hands it is very uncertain. There is risk of fatal hæmorrhage during the operation. Ureters have been clamped even by the best men right here in this city. Necrosis may follow the clamp. Cystitis may follow the septic discharges. In the abdominal operation there is easy access and inspection throughout. We have the same advantage as to cleavage, if you will follow the operation which I have been recently urging—that is, by cutting down and across, first published by Dr. Pryor for intraligamentary fibroids—which I use for all forms of hysterectomy. After cutting over on the worst side you strike the plane of cleavage on below and roll the

structures up and out, and deal last with the most difficult parts. Then, too, we deal with intestinal adhesions, which can not always be safely handled, sew up the intestines where it is necessary to make the operation that way, and find bands of adhesions. So I would insist, in the presence of a perfect aseptic technique, on the better advantages of the abdominal operation for the patient.

Dr. CUSHING : The great question before this Society is as to the limitations of each method of operation. I had the privilege of following Dr. Segond's work pretty closely last summer, and I must say I was amazed when I saw the ease and facility with which suppurative disease of the annexa could be treated from below. But it is not an easy thing to do it one's self. We can go to a neighboring city and see a distinguished member of this Society put a catheter into a ureter as easily as one puts a key in a keyhole. When you go home and try to do it, it does not materialize. In the same way some of this work in vaginal hysterectomy is easy to see and not so easy to do. As a matter of fact, it is beautiful to see the technique as developed by long training by men who have grown up by degrees to encounter every difficulty and every objection. I insisted to Dr. Segond that the French school were not justified in taking the position they did without a knowledge of the perfection to which abdominal hysterectomy has been brought in America, and which is not equaled in France or in all Europe. He does us the honor to come over here to see our methods. I began vaginal hysterectomies for cancer in 1887, and it is a fact that the morcellation very much simplifies that class of vaginal hysterectomy which in old times was hard to do. I emphasize what the doctor says about the use of the retractor for holding back the bladder. Some time ago an overzealous assistant in two cases pushed in the anterior retractor between the bladder and the peritonæum, in both cases cutting the ureter and subjecting myself and my patient to great distress. To my knowledge, those are the only ureters I have cut in ten years, and I feel sure it was done in that way. The limitation which I have established in my mind is not to operate on a fibroid tumor a little larger than my fist by the vaginal method. If it is done from above, it is so easy and simple that the difficulty of the abdominal scar sinks into insignificance in comparison with the increased security and facility of the operation. In suppurative disease I would limit the operation to cases, first, where there is pus in a large amount, where the patient is weak, where we have reason to predict a formidable case, where we can get the pus from below, if necessary removing the uterus as a means of getting

the pus; second, cases where, although there is evidently disease of both tubes, the whole is movable. Where the uterus can be pulled down it is a simple matter to roll out the uterus and tubes. It is as easy to separate the adhesions from below as from above. The natural insertion of the tube is far down. Instead of pulling up, contrary to the natural order of things, it is easy to get the fingers above it and roll it down and out. Where the uterus is wedged in, where there is a mass which it is difficult to move, where you are running into unknown difficulties, I certainly would not attempt it. There are difficulties about hæmorrhage which for the younger generation (who, perhaps, will grow up watching these things) are all very well, but for one who is thoroughly trained in the abdominal work it is going to be easier and safer to do the operation from above. The mere evidence of the abdominal scar is not to my mind sufficient recompense for the dangers incurred.

Dr. MANN: I want to speak specially in regard to cancer. Dr. Kelly lays down the rule that all cancer should be attacked from above. It seems to me that there are varieties of cancer, and we should be guided in our choice of operation by the location of the disease. Cancer is usually put down as attacking three different portions of the uterus: (1) The vaginal; (2) the supravaginal cervix; and (3) the body. I believe in the first variety, where it occurs down in the vagina, where the vaginal walls are not affected and the broad ligament not involved, that we can do the operation by the vagina better and get better results than we can if we operate from above. I think the same is true where the body of the uterus alone is attacked and where there are no adhesions, where the uterus is very easily movable. These two classes of cases, however, make up the smaller number. The bulk of the cases are those which involve the cervix proper above the vaginal portion, and in these I have no doubt that the abdominal method is by far the best. The work which has been done in Baltimore, the work done by our President and others in this line, seems to me to prove conclusively—and my own experience carries it out—that we can do much better work from above than we can from below in these cases. We do not see them early, the ligaments are often involved, and we can get much more tissue and get a much cleaner sweep from above than we possibly can from below. They are very difficult cases, and they require a great deal of time. I have been an hour and a half, or even more, in taking out a uterus under those circumstances, but the result fully justified, I think, the method of getting at them from above. In regard to the

other vaginal operations, I must confess that I am converted to a very limited degree. I have had some very beautiful results from the method that Dr. Henrotin called our attention to last year, operating post partum where there was suppurative disease, making the incision behind the uterus and draining in that way. I have had three or four beautiful results. In one case particularly, where somebody had done curetting and got suppuration, I simply opened and drained, and the patient got well promptly without any abdominal section at all. I operated last Saturday for a pus tube, which was a very singular case. I mistook it for a soft fibroid down behind the uterus, and I took it out through the vagina with perfect ease. But as to taking out the uterus in these bad cases of suppurative disease or extensive disease of the pelvis, I must confess I am far from being converted, my results by the abdomen being so good, and the experience I have had so considerable, that I hate to throw it all away, and, although I may perhaps be converted, I have not heard anything here to-day which would tend to do so. It seems to me that the pendulum is swinging the other way, and that the rush for vaginal work which we saw last year is letting up.

Dr. REAMY: I do not rise to discuss this question at any length at all, but simply to critically examine the points made by Dr. Keily. The arguments of one so distinguished as an operator and so brilliant and eloquent as a speaker should be examined in order that they may have only their due weight as they go forth. He insists that a large number of cases now are saved from radical operation of any character by drainage through the vagina. My moral drawn from that is, that the facility with which this drainage can be done through the vagina, and the radical results with reference to cure consequent upon it in a large number of cases, are due to the fact that notwithstanding that the drainage was done years ago, the facility and the extent to which it is done now are due to the lessons taught as to the facility with which work could be done through the vagina. He calls attention to the fact that the operation through the vagina is a dangerous procedure for the beginner. I would like to ask whether in a difficult case the abdominal procedure is not likewise. He shows in proof of this that in more than one instance operators have tied the ureters and damaged them by the vaginal operation. I would like to inquire if beginners, as well as those well advanced in abdominal work, have not likewise tied the ureters in a number of cases from above? And, after all, does not such a statement as that simply show the fact that the ureters are in danger by any method, and that they

are more in danger if the operator is not familiar with his work? I simply call attention to the fallaciousness of the arguments offered on this subject. Dr. Kelly calls attention to the fact that he has removed quite a number of fibroma from the uterus by a section from above. We are all doing that now to a considerable degree, and those cases are not recommended to be operated upon from below. The whole question turns on what kind of a case you have got, and upon nothing else, and it is unfair to argue it by the methods that are being adopted.

Dr. A. PALMER DUDLEY : I come forward to call attention only to one or two points in Dr. Segond's paper which seem to me to be very pleasing to us. The first is that he does not offer his method as a panacea for all pelvic diseases. He says he selects his cases, as we all do ; and the fact is simply that vaginal hysterectomy has come to stay as well as hysterectomy done from above. It is merely a question of diagnosis. The whole thing rests there, and on the proper selection of your cases, and applying the method to it. Another point that I wish to draw attention to is the fact that we are listening to a master, who has done six hundred cases. Possibly if we, as operators in this country, could at some time in the future report six hundred cases we would be able to report better skill than we can show. Another point is the use and abuse of the retractors. Since Dr. Jacobs read his paper I think most of us have been using retractors. We have used his method and instruments, and it is certainly a good point that he brings forward in the paper. I believe that the reason for the use of it by Dr. Jacobs is the fact that he severs the cervix from the vaginal connection by the cautery. The use of the retractors and speculum is, of course, beneficial in preventing the burning of the vagina by the cautery, so that sectioning the vagina as Segond does is an advantage. It is an advantage because of the fact that the scar will not heal in less than four weeks if you use the cautery. I have not time to speak of the cases such as Dr. Byrne reported. I wish I had, because I would like to tell some of my experiences. I will only criticise one remark made by Dr. Kelly by saying that when we get a case of cancer of the uterus that has advanced so far that we have got to cut the patient crosswise and up and down, and dissect out the pelvic cellular tissue, that patient had better be left alone.

Dr. BACHE EMMET : I do not rise to express special adherence to one view or the other. My limited experience would necessarily leave my remarks without the value of those of many who have spoken before me. I admired exceedingly the method described in the paper,

and I think we will have very great benefit from the method he utilizes, of slipping up the vaginal attachment on the side as well as front. That certainly gives us a flap anterior and posterior, which is certainly of much more value than anything we have had hitherto. As regards the use of the retractor, I have found a very great benefit in using it, but I think it depends on the time at which one separates the bladder from the uterus. If the bladder be separated from the uterus in one step and right along, I think one may with advantage use the long retractor and keep it in position and hold up the bladder and the omentum until the fundus of the uterus is turned out. Once that is turned out and one can bring the whole ligament into view, then clamp it. One other remark as to clamps: When formerly doing the operation, and before adopting the method of turning out the uterus, we sought to put our clamps in position from below. We saw later some methods developed in France, by which the clamp was placed in from above, turning the ligaments forward under the retractor, and so clamping from above. That was thought to be somewhat injurious. Dr. Segond says we do only what we see, and see what we do; but we have worked in the dark, and I think there are cases in which we are obliged to, and for this purpose I have devised a clamp which I have utilized and which works in the manner of a nutcracker, the fastening where the joint of the nutcracker is. It works on a principle different from the clamps hitherto used, and I have used two varieties, one a modification of the other. It is serviceable in this way: that one can utilize it by passing the female blade up the posterior face of the broad ligament. There is no wide separation of the part, and it is a perfect clamp and an excellent hæmostatic. There are cases again where we can not so readily get our fingers behind to place the straight instrument, and for that purpose I devised this one. The clamps can stay in position forty-eight hours, and there is no pain.

Dr. KRUG: I do not think any man has taken so much advantage of this discussion as I have. It is only two years since this Society met in Washington. The meeting was opened by our fighting for the total ablation of the uterus in bilateral disease of the annexa of the suppurative kind, gone beyond the possibility of doing a so-called conservative operation. I was ably seconded by my friend Dr. Baldy and a few others. We stood alone against the most terrific onslaught of so-called conservatism. We were denounced as the mutilating kind, taking out the uterus, which is certainly of no use after the tubes and ovaries have been extirpated; in short, all sorts of nasty things were said to us. Now, to-day, I have been sitting here listen-

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ing to this discussion, and I find that not a single dissenting voice has been raised as to the propriety of ablation of the uterus when there is bilateral suppurative disease of the annexa demanding their removal. I simply wish to emphasize this fact and congratulate myself and the few men who stood up with me at the time that it is now simply a question whether it shall be done *per vaginam* or from above, and it is only a question in which case we can simply use drainage and not do anything at all. At the same time I must rejoice at another fact. Whenever the word "drainage" was made use of, it was understood that it should take place in the proper direction, and that is through the vagina. Dr. Kelly has mentioned that he can do it by opening the *cul-de-sac*. I remember a very long discussion I had some years ago with a man of large experience, who claimed that drainage can be done by a glass tube up hill assisted by some sort of pumping instrument to get out the fluid.

Dr. FORD: I protest that we still think it worth while to talk of conservatism in gynecology as applied to the uterus. I had the pleasure last year of witnessing Dr. Segond's operations for many days, and indorse everything that Dr. Cushing said, including what he said about the difficulty of following out the course when you get home. In reading the literature which Dr. Segond has published, and which I never had the pleasure of seeing until after I had witnessed his work, I was impressed by the fact that his early articles indicated that his hysterectomy was done for the purpose of getting at disease of the annexa above rather than with the primary object of a hysterectomy; that the uterus, being in the way of an operative procedure, was removed. That was in his first papers. In this country I think quite the opposite view will be taken, and in vaginal work here we will leave the uterus in a larger number of cases and remove the annexa through the vaginal incision, or remove the diseased tissues, if possible, by the vaginal route, leaving the uterus, which I do not think ought to be removed simply because somebody can say it is a useless organ when the ovaries have been removed. I do not think that is a correct announcement or a correct surgical principle that because an organ is useless it should be sacrificed. An organ which can be so thoroughly drained and made aseptic as a uterus, it seems to me, ought not to be condemned solely because its usefulness is destroyed by having something near it taken away. I think the trend will be to save the uterus and to remove the disease, from our study of the work of these Frenchmen, who are certainly more skilled and more deft in this particular work than we have as

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yet been. I would like also to say that in favor of vaginal hysterectomy one omission has been made, and that is, that in suppurative diseases the clamps which can be so easily removed may let out little foci of pus which in the old operation was always retained. It is perfectly true that their results are better with the clamp than ours with the ligature for this reason, and also that their scar tissue is better afterward. I am glad to see that the question of hysterectomy by ligature has not come to the surface to-day.

Dr. COE : I hope this discussion will not be closed until some notice has been taken of Dr. Byrne's paper. It seems to me that we have passed the stage of a mere operation, and we have reached the time in surgery when we should begin to look at the ultimate results. That should be the study of the surgeon in the future. We expect patients to get well. If they do not it is our fault in a majority of cases. I have become a pessimist in regard to surgical treatment of carcinoma of the uterus. I was speaking a few days ago with one of the most prominent surgeons in this vicinity, who has had large experience with removal of the breast for carcinoma, and had had published a list of five hundred cases. One had been brought back, and he said he must cross it off the list. I do not deny that some of the statistics have been extremely favorable, but I must submit that conditions in carcinoma of the uterus are entirely different. In spite of the possibility of a radical operation through abdominal section, we still have foci of pus, impalpable, not to be discovered, which may remain so that we can never in any case prophesy absolutely that we have cured the case by operation. I think we ought to look at this in a proper way. In the most radical operation for removal of the breast, in making cross-section of this organ, we find small suspicious nodules which under the microscope show groups or cells which may not be carcinomatous, but are very suspicious, and the recurrence of these things shows that it is from these suspicious nodules, these collections of cells, that the disease returns. I do not see how we can dispute the claims of Dr. Byrne, that the use of the cautery not only removes the disease, but destroys and chars the cells.

Dr. GORDON : I wish to speak first in regard to the removal of cancer of the uterus. While I believe that Dr. Byrne has done the best work that has ever been done in any direction, yet I have never done any of it myself. But I do make the double operation usually in cancer of the uterus. I make the abdomino-vaginal, and I do it for this reason : I can very much more rapidly remove the vaginal portion of the cervix. I can also ligate the uterine artery, if I please,

at that point, complete the operation by the abdominal route, and draw back the uterus through the vagina, thus avoiding affecting the parts by the diseased portion. In my experience I have found this is a much easier route, and much more satisfactory. I agree fully with Dr. Coe that operations for cancer of the uterus are very unsatisfactory. I think it accomplishes only this: that you oftentimes remove a great amount of tissue which sloughs and makes the patient very much more disgusting to herself and everybody else. As to operations for fibroids, I certainly must keep myself where I always have been—in favor of the abdominal route. I can see little enough that way, but I can see more than I can by the other route—the vaginal. Until I have seen very much more of the vaginal operation I shall certainly confine myself to the abdominal route and remove the entire uterus, as I have practiced for quite a good many years. I think that we have then not only got rid of all the diseased portion, but we have got rid of a cervix which may become diseased afterward.

Dr. BAER: I have very little to say, except that I am still operating from above, mainly for the reason that I believe it is not proper or necessary, it is not best, to sacrifice the uterus because the appendages are sacrificed. I do not think that is in keeping with the surgical law which has been handed down to us for generations. We ought not to sacrifice a healthy organ. Now, that the uterus is incurably diseased when the appendages are diseased is not true, and that it is a useless organ I do not believe. If I believed the uterus should be sacrificed wherever the appendages are sacrificed, I would begin operating on some of my cases from below. I believe so fully that we ought to preserve the uterus if possible, if it be healthy, that when the body of the uterus must be sacrificed on account of fibroid disease, I think the cervix should be preserved. You are all familiar with the reasons why I think this, from the paper which was read here in 1892, which has been discussed a good deal, and which has been accepted as a slight work of value by the indorsement it has received. My success has not been what I wish it to be, of course, and I lose at least one patient in a hundred. I would like to save the one.

Dr. BALDY: I feel, like Dr. Krug, rather a personal satisfaction in the turn that two years has brought about in the Society. The whole subject has evidently sifted itself down in the minds of the members of the Society as to the method rather than as to the advisability of the operation. As far as I have been able to notice this morning, there has been only one objection offered to the abdominal route, and

that is the scar on the woman's abdomen. I would place that in contrast with a condition which I consider of far more importance to the family relation and the patient herself than the scar can ever be, and that is the shortening of the vagina due to complete hysterectomy where it is done from below. I know of no more serious complication than its shortening one or one and a half inch. If that were all, the two objections probably would stand on a par. Granting that we stand on equal grounds as far as mortality is concerned, how about the complications? We have heard from our distinguished guests of fistulæ, ureteral injuries, and hæmorrhage. Now, sir, by the abdominal method none of these occur. If the ureter is injured it can be and should be repaired then and there, and the patient's convalescence be as good as it would have been if the accident had not occurred. As to bowel injuries, they are possible. Occurring from above, they can be and should be repaired. The same may be stated in regard to the bladder. It is the rarest thing in the world in opening above, and it does not happen unless in opening the abdominal incision, and that should not occur. Again, who has ever done a vaginal hysterectomy in which the dressings have not had to be changed repeatedly at the expense of pain and discomfort to the patient? When we go over the disadvantages of the vaginal method and contrast them with the one element against the abdominal method—the scar—it seems to me the evidence is overwhelmingly in favor of the abdominal operation.

The Society went into executive session, and finally took an adjournment until 3 P. M.

(*To be continued.*)

TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, April 21, 1895.

H. C. COE, M. D., *President*, in the Chair.*Tubal Mole ; Retro-uterine Hæmatocoele ; Salpingo-oöphoritis Dextra.*

Dr. H. N. VINEBERG exhibited a specimen, with the following history :

This specimen of ectopic gestation possesses considerable interest from a clinical standpoint, and offers some food for reflection as to the best route for removal of such conditions. The patient was thirty-one years old and had been married eight years. She had a stillborn child seven years ago, and since then had never been pregnant. Had never had any pelvic trouble. Menses were regular and painless. I saw her first on February 18, 1896. She stated that three weeks before she began to flow, which had continued more or less since. The flow set in exactly seventeen days after the last period, which was regular as to time and amount. During these three weeks she suffered considerably from "cramps," a symptom, however, of which she informed me only after the operation, after repeatedly questioning her as to the existence of any pain prior to it. She had passed several clots. The woman had a healthy appearance, with good color of the lips and mucous membrane. At the first examination I thought I had to deal with a retroflexed gravid uterus which was bound down by adhesions, and which was trying to abort. At my second and more careful examination I could distinctly palpate the uterus, somewhat enlarged, lying in front of the tumor in Douglas' sac, which appeared to be the size of the double closed fist. It was firmly adherent, of varied consistence, in parts moderately hard and in parts quite doughy. The annexa could not be detected by palpation.

I made the probable diagnosis of dermoid or ovarian cyst.

On February 24th, after she was anæsthetized, a prominent gynecologist, who happened to be present, made a bimanual examination, diagnosing a cyst of the right ovary. I first curetted the uterus, removing but very little tissue, then did an abdominal section. The tumor had a bluish appearance, was covered with a few small inflammatory cysts, and was extensively adherent to the intestines and to the

uterus. On attempting to enucleate it a rupture readily took place. Some liquid blood and a large quantity of small, dark clots escaped.

The left tube, thickened to the size of the thumb at the distal end, which was club-shaped, lay in the center of the blood tumor, running transversely to the right side of the pelvis. With considerable patience I succeeded in enucleating the entire wall of the hæmatocele. The right tube and ovary, as you see, were hopelessly diseased, and consequently were also ablated. There was a large raw surface behind the uterus, and the uterus itself was bored to a considerable extent. As the operation had already lasted a fairly long time, I desisted from removing the uterus, but packed the space behind it with iodoform gauze, allowing the end of the gauze to pass out at the lower angle of the abdominal wound. The patient has made a good recovery, but still has a fistula of very fine caliber at the site of the gauze drain. The points of interest in the diagnosis are: (1) The absence of a missed period. The woman had been quite regular and the continuous hæmorrhage set in seventeen days after the last normal menstrual flow. (2) The absence of symptoms pointing to the rupture of a pregnant tube and to the occurrence of intraperitoneal hæmorrhage. (3) The comparative freedom from pain and febrile symptoms in the face of rather extensive local peritonitis.

The other points of interest are, the evidently early rupture of the tube, the formation of a mole, and, as is usual with these formations, repeated small hæmorrhages, allowing the formation of a limiting membrane.

The CHAIRMAN called for discussion, especially with reference to the diagnosis, the question of operation through the abdomen or from below, and the removal of the uterus.

DISCUSSION.

Dr. J. E. JANVRIN inquired what the doctor's diagnosis had been.

Dr. VINEBERG replied that he had simply made a probable diagnosis of ovarian or dermoid cyst, merely saying a pelvic tumor. He did not commit himself, because he did not feel that he could under the circumstances.

Dr. JANVRIN said that the history of the hæmorrhage, beginning some seventeen days after the last menstrual period and continuing for some three weeks, would scarcely be a part of the symptoms which accompanied the presence of an ovarian tumor. That, to his mind, would be a symptom which would suggest the presence of a gestation either intra-uterine or extra-uterine; if the former, with

threatened abortion, and if the latter, with rupture and hæmatocele. The operation was certainly justifiable. The inserting of the iodoform gauze into the lower angle of the incision was perfectly justifiable and was good practice. It struck him that he would have made an opening through the *cul-de-sac* also, and had his drainage through that point. He thought the doctor did right in leaving the uterus in its place. He did not see any indication in the history of the case for the removal of the uterus. As he had on many previous occasions expressed himself, he did not believe the uterus ought to be taken out unless there was some thoroughly good reason for it.

Dr. SIMON MARX said that the question whether these cases should be operated on from above or from below depended on whether there had been free bleeding into the peritoneal cavity or not. His own experience was that diagnosis in a great many cases was absolutely impossible. Those present had all seen cases with pulse at from 70 to 80, in which they were surprised to find hæmorrhage into the peritoneal cavity. Given a case where diagnosis has been made of free bleeding, would it be justifiable to go in through the vagina? In other words, do these blood clots take care of themselves? He had found that it was with the greatest difficulty that these blood clots were removed, and yet the operators say that they will take care of themselves by draining into the vagina by means of gauze introduced into the peritoneal cavity.

Dr. W. R. PRYOR said that he had operated on four cases of extra-uterine pregnancy by the vagina, three within the last six months, the diagnosis being corroborated by the microscope in all cases. One was small, and three were very large, extending to the brim of the pelvis, and all on the right side. Two of the large ones were treated in this way: the uterus was removed between forceps, the sac simply split up, no attempt being made to remove it, and the sac packed with iodoform gauze. The small sac was removed with the uterus. The three large sacs had ruptured into the broad ligament. In one case he had simply opened the sac and let out the putrid blood clots. It seemed to him that it was better, in the cases of these large extra-uterine sacs, to take out the uterus, thereby controlling the blood supply to the sac, than to try to attempt enucleation before doing that. When the attempt is made to enucleate first, trying to free this mass, the bleeding is so severe that the operator is apt to turn around and go to the abdomen. The beautiful results obtained in pus cases by splitting open the tubes from the vagina and packing with iodoform gauze justified the belief that the same thing might be done in

extra-uterine cases. These three women were operated on with perfect success, and no attempt whatever was made to break off the union between the sac and the broad ligament and the intestines. All made good recoveries. The small sac, however, was removed with the uterus *en masse* by the vagina. He desired to say that of course the excuse for the hysterectomy was found in the demonstration of disease on the other side.

Dr. H. J. BOLDT said that in his opinion the question of the best method of attacking ectopic gestation, whether from above or below, depended entirely on the individual case. He did not believe that we had any right whatever to remove a woman's pelvic organs if there was a reasonable doubt that they could be saved. If a patient who was suffering from that condition was operated from below, and it was done in the manner which had just been described by Dr. Pryor, he did not consider that we were giving the patient a full chance. We are not dealing with both annexa diseased; we have an ectopic gestation only on one side. Now, when you remove the uterus you render the woman entirely useless for her future life, as far as fecundation is concerned. He did not think a statement of that kind should be allowed to go forth from this Society without being challenged. If Dr. Pryor or any one else is certain that both annexa are diseased, it is all right to do such a radical operation.

Dr. PRYOR: I said distinctly that the excuse for hysterectomy was found in the knowledge of disease on both sides.

Dr. BOLDT (continuing) said that if the operator was satisfied of that fact, then he was perfectly justified in operating from below. But we are not justified in going to work, as a rule, and beginning an operation for extra-uterine pregnancy in such a radical way as to take out the uterus first, because he did not see how it was possible to tell that the other side is diseased. He had called attention some time ago in this Society to the fact that we were justified in operating from below in extra-uterine pregnancy, but we should only take the side from which the trouble comes, and whenever it is impossible to do that, the course pursued by Dr. Vineberg is the proper one, unless we were positive of incurable disease on the other side. He thought it was immaterial whether the hæmorrhage was intrapelvic or not, as far as the point of operation is concerned. We can operate from below as well if it is intraperitoneal.

Dr. VINEBERG said that the packing in this case was particularly useful in keeping the intestines away from the raw surface, and that was his reason for packing in the manner he did rather than through

the vagina, because he felt he could not keep the intestines away from the raw surface which had been created by the enucleation, particularly the upper part, as well as he could by packing through the abdomen.

Dr. JANVRIN did not think there would have been any difficulty in accomplishing the result sought. The gauze could have been introduced from above and carried down through the opening into the vagina, and could be spread out to protect the posterior walls of the uterus perfectly well. He had done this in several similar instances.

Presentation of Instruments.

Dr. A. F. CURRIER presented a speculum which was a combination of Auvard's and Edebohls', with modifications. He had known of no instrument heretofore which would accomplish vaginal work more satisfactorily than that of Dr. Edebohls, but the tin-can attachment to the blade had always seemed to him to have decided disadvantages. The instrument of Auvard, on the other hand, was set at too great an angle—that is, the blade formed too great an angle with the handle, and he had experienced in a number of cases that the instrument slipped out from the vagina in the course of an operation. He had therefore endeavored to combine the advantages of the two instruments, and the one he now exhibited had been found satisfactory after much experimentation. It possessed the advantage, as would be seen, of being easily taken apart and easily cleansed. He had found that in most cases the smaller blade of Edebohls' speculum was sufficient, but in cases in which the vagina was very much relaxed and very voluminous it did not depress the posterior vaginal wall sufficiently, and so he had had a larger blade made, which seemed to him to answer every purpose.

He also exhibited an instrument which he had found very useful in vaginal hysterectomy and especially in cases of cancer, being the utero-tractor of Bernays, of St. Louis. The distance between the terminal points of the blades being insufficient for a firm grip upon the interior of the uterus, especially in large uteri or in those in which the infiltration of cancerous disease was extensive, he had had made the one which he now exhibited, with a spread of an additional quarter of an inch at the end, and changed also by the addition of a French lock and a ratchet catch at the handle.

Dr. VINEBERG said that he had seen an instrument quite similar to the one now presented—the modification of Auvard's—but he found that the ball was not far enough away from the plate of the

instrument, and it would come into contact either with the patient's buttocks or with the table; so he had one made with a longer shank and with the ball and weight attached much farther down.

Ectopic Gestation.

BY W. GILL WYLIE, M. D.

(See page 7.)

DISCUSSION.

The PRESIDENT called attention to the interesting points which had been dwelt upon by Dr. Wylie in his paper—namely, the difficulty of diagnosis where there has been hæmorrhage from the tube, and especially without examination under an anæsthetic; the question of drainage—whether it is necessary to wash out and drain a simple non-infected case; and fever as a symptom of ectopic gestation in the absence of a sign of old trouble.

Dr. A. P. DUDLEY inquired whether the specimens had been subjected to microscopical examination and whether chorionic membrane were found to be present.

Dr. WYLIE replied that in two or three of the Bellevue cases they were found, but the specimens present he did not think had been so examined.

Dr. DUDLEY said that his reason for asking was that it was difficult to make a diagnosis of extra-uterine pregnancy in the very early stages, especially such cases as had been reported, and also because of the fact that hæmatosalpinx due to menstruation or to pathological conditions attending menstruation was so similar in appearance to an ectopic gestation, that unless the tube and its contents were subjected to microscopical examination one would sometimes labor under a mistake. He had made it a practice for years to make laparotomy during menstruation, and he had never yet opened the abdomen of a woman while menstruating that he did not find from two to four ounces of free blood in the abdominal cavity. He had found blood clots as well, and had found the fimbriated extremities, which were always sympathetic with the condition, much congested, and ready to bleed at the slightest touch and manipulation. He had found the tubes containing blood, some of them as large as his thumb. Another interesting point in the paper was the question of leaving a tube and ovary, even though it be somewhat diseased, in a woman who was just married. It seemed to him a terrible thing to have to remove tubes

and ovaries from a woman who was only seven weeks married, even though there was a small cyst in the opposite ovary.

Dr. WYLIE said that although it was a small cyst, it involved every part of the ovary, as would be seen by examination of the specimen.

Dr. DUDLEY (continuing) said that his reason for making his statement was that one of the gentlemen with whom he had been battling for a great many years respecting hysterectomy for different diseases of the female organs admitted that he would very soon report two cases of delivery of live children where he had removed both tubes and ovaries, so far as he knew, so that in all probability in both cases a portion of the diseased ovary was left, and in both cases the women impregnated and carried to full term. He found reported in a Berlin journal a few days ago a case of hysterectomy for uterine disease where both tubes and ovaries were left, the tube being brought down into the vagina, and the woman impregnated and carried for six weeks in the tube. If there be a quarter part of one ovary that could be left with the tube he would leave it in every case, and would make a laparotomy later on if it were necessary to remove the tube and ovary for disease. As to the method of attacking such conditions, he believed that the abdominal wall was the best route. It is not in the power of any man to work through a five-inch narrow canal and manipulate an adherent extra-uterine pregnancy of the intestines or omentum and remove it with as much safety to the woman as though he went through the abdominal wall. The uterus certainly would not have to be removed in order to get at the pregnancy. The argument would not hold water, because one might just as well say, "Do a hysterectomy for a large pyosalpinx; do not attempt to break up its connections; drain it and leave it there." The woman will have as many reflex symptoms from the pyosalpinx as she will from the extra-uterine sac. He believed that drainage through the vagina is the best. Break up the adhesions, pack gauze behind the uterus, and then open the *cul-de-sac* and bring the drainage down through. If necessary, make double drainage. He had been in the habit of packing one piece of gauze into the pelvis and bringing its end through the vagina, and putting another one on top of that and bringing it through the abdomen, being able to pull the tube in different directions and give relief to the patient. He believed that the tendency was to drift away from the foundations upon which surgery should be forever fastened, which was to conserve and save these organs to patients rather than to take

them away. A week ago he received a letter from a patient where he had taken out an enormous ovary with the tube attached. The opposite ovary was diseased and he took out a portion of it. The patient has been two and a half years without pregnancy and is now carrying. He believed that experiences of that kind should lead to the saving for the woman of everything that was possible to be saved.

Dr. W. E. PORTER said that he desired to refer to the comparative absence of pain in a great many of these cases of ectopic gestation. He had seen three cases in which there was a very considerable amount of hæmorrhage, which were undoubtedly cases of ectopic gestation, where the patient experienced at the time of the rupture a sharp pain lasting but a short time in each instance, and the symptoms of hæmorrhage became finally most marked. There was one instance in particular where the hæmorrhage was very slight at first, apparently; there was practically no pain, simply an acute discomfort during an hour or more, which passed off, and there were evidences of continued slight hæmorrhage for a period of three days. Vaginal examination revealed a mass filling up the pelvis, so that when operation was done at least a pint of blood clots were found in the pelvic and abdominal cavities. The question of removal of the tubes must rest entirely with the condition of the individual case. If it was possible to leave one it was wise to do so. But if there was any considerable destruction of the tube, and if the ovary was badly diseased, it was best to remove it, preferably by the abdominal method, from the fact that complete command of the parts is obtained. Personally, he preferred to use very little drainage. If thorough abdominal irrigation with plenty of sterilized saline solution is used the clots can be flushed out, and there will be less difficulty afterward in the way of adhesions, and very rarely will there be any subsequent sepsis. If drainage is used at all he preferred to use it through the vagina in the form of gauze rather than a glass tube.

Dr. H. T. HANKS said that he remembered the last time he discussed the subject in this room. He was one of those at that time who had for a number of years believed in the use of electricity for the destruction of the fœtus instead of resorting to an operation. He had been a firm disciple of Dr. Thomas, who had advocated electricity instead of the knife for this condition. Dr. Janvrin had advocated operating at that time for an unruptured pregnant tube. Later the conviction had grown upon him that when a case of ruptured tubal pregnancy was found the thing to do was to open the abdomen. He had said that where an operating gynæcologist could be had the scalp-

should be used, but if one could not get a gynæcologist electricity might be used to destroy the ovum. He did not care to qualify that statement to-night, but there are but few towns in the United States to-day where there are not one or two who can do an abdominal section. The question to-night is somewhat different from the old discussion. It is a question of which operation shall be done in the different cases. There is no doubt that an operation, in many of the cases, can be successfully done through the vagina. He could only emphasize the point made by him a few nights ago, that to treat all these cases in the same way was unnecessary and unwise. A good operative gynæcologist to-day should be an all-around surgeon, and should be able to attack it through the abdominal wall or through the vagina, as may be best for the patient. We ought to operate from above in all bad cases of ruptured tubal pregnancy, even if the patient is in collapse. Of course not without proper stimulation first. But where there is an unruptured tube, which you are morally sure is a tubal pregnancy, the operation should be done through the vagina. Each case should be treated on its own merits. In ruptured pregnancy where the hæmorrhage is only slight, but where you are sure it is a tubal pregnancy, operate from below; and where the rupture is into the broad ligament the operation should be from below. The records prove how easy a matter it is to open and empty the blood clots and control the hæmorrhage in the broad ligament. He differed from Dr. Dudley, who had said that all women were liable to have hæmorrhage in the abdominal cavity if the operation is done when they are menstruating. He had operated many times during menstruation, and never found blood in the abdominal cavity. As to the prognosis, he recently had two cases of tubal pregnancy at the same time. One was the wife of a wealthy gentleman on Seventy-first Street. She presented all the subjective and objective symptoms of tubal pregnancy, with slight hæmorrhage, but they were unwilling to have an operation. She is alive to-day, and very well, but has a tumor on that side the size of a mandarin orange. The other patient lived on Fifty-eighth Street, a young woman, the mother of one child. She presented all the symptoms of a ruptured tube. He watched her for a fortnight before doing a suprapubic operation. An interesting point of the case was that the patient never carried any temperature—it was never half a degree above the normal, in fact. The operation showed, however, a ruptured tube on the left side and a pyosalpinx on the other.

Dr. PRYOR said he wished to speak of the question of diagnosis.

By looking over the anatomy the members present would find that the distance between the *cul-de-sac* and the vulva and the *cul-de-sac* and the abdomen is about the same. Inasmuch as nearly all these women have had children before the ectopic gestation has occurred, there is usually ample room in the vagina if you use Trendelenburg's posture. The *cul-de-sac* is opened, and no matter how large the sac on one side, by pushing the uterus up behind the symphysis with Péan's trowel, and depressing the posterior flap, it is possible to look into the pelvis, and he had even demonstrated the vermiform appendix three times in that way. The diseased tube can be seen perfectly well, even if the uterus is crowded to one side and the pelvis is seemingly filled up by the ectopic mass on the other. The intestines are pushed up, and there is no difficulty in getting them out of the way.

Dr. VINEBERG (in closing) said the points of diagnosis were exceedingly difficult, and every one would admit that he had sometimes been mistaken. The cases which give him the most trouble are the dispensary cases, where the woman comes with an imperfect history, has perhaps aborted, but has had a continued irregular hæmorrhage, and on examination you find a somewhat enlarged uterus with a mass to the one side. The patient has not been under observation. It is impossible in such cases to be able to tell positively whether you have a pyosalpinx there, following an abortion with some infection, or whether you have an ectopic gestation. He had before called attention to the fact that in intra-uterine gestation there is an irregular enlargement of the uterus which will give rise to all the physical signs and some of the subjective symptoms of extra-uterine pregnancy. He had reported a case where a good diagnostician made a diagnosis of extra-uterine pregnancy, and the woman aborted in the usual way. Dr. McLean had reported an interesting case in which the condition was only ascertained after the abdomen was opened, and it was found that the gestation had occurred in the *cul-de-sac*, and the uterus was bound down by adhesions. As to the question of route, he favors the vaginal route wherever it can be adopted, but unless very favorably situated he prefers going through the abdomen for extra-uterine gestation, for the reason that he does not believe good, safe surgery can be done unless you can deliver the uterus through that vaginal incision, and the uterus in ectopic gestation is very soft and pliable, and you are liable to lacerate it very considerably in taking it through the incision. He was interested in what Dr. Pryor had to say about being able to see these parts so distinctly through the incision in the posterior *cul-de-sac*. To him it appeared to be rather difficult, and

he should prefer, as he has always done heretofore, to make an incision in the anterior vaginal wall.

Dr. WYLIE (in closing) said that he did not in his paper take up the question of operating, because he thought he had pretty plainly indicated which method he favored. He had had so little trouble and so few mishaps in his operations for ectopic gestation that he saw no reason for changing. In some cases he had not known what it was, but where he did know and felt that he had the choice, he would nearly always take the upper method. In the two or three cases where he operated by the vagina it was a matter of necessity; the patients were badly septic and he did not consider it safe to open the abdomen and do a prolonged operation. As to operating during menstruation, he had done it a great many times, and had seen swollen and congested tubes, but he had not found any free bleeding in the peritoneal cavity unless there was some injury. He did not think the cases he had would have been mistaken for any such condition. The trouble was all in one tube, and the other showed plainly there was no trouble. For the satisfaction of the doctor he would say that in all the eight cases he only took out both tubes and ovaries in two cases, one of them being an ovarian cystoma which involved the whole ovary, and the other a case of pyosalpinx where the tube was useless. He did not believe in taking out the tubes and ovaries of a young woman except in cases of necessity, but in the case in question he had consulted with the woman's husband and mother, and after due deliberation they thought they had better not make any experiment by leaving a healthy tube on one side and a probably healthy ovary on the other.

Hysterectomy for Fibroid, Carcinoma and in Pregnancy after Ligation of the Anterior Trunk of the Internal Iliac Artery.

By WILLIAM M. POLK, M. D.

(See page 1.)

The Choice of Operation in Ectopic Gestation.

By MATTHEW D. MANN, M. D., BUFFALO, N. Y.

(See page 13.)

DISCUSSION.

Dr. JANVRIN said he had had no experience whatever in the operation *per vaginam* in cases of extra-uterine pregnancy; he had never found a case in which he thought it was appropriate. He had not

had the later class of cases to which Dr. Mann referred. But as to the earlier cases, he entirely agreed with Dr. Mann that laparotomy is the proper operation, simply because in that operation there is almost always a clean field as soon as the clots are cleared away. Dr. Hanks had said that he (Dr. Janvrin) had operated in cases where there had been no rupture. In that he was right, but in those cases there had been hæmorrhage from the rupture of the vessels on the surface of the sac, and the point made at the time—afterward proved true—was that the very presence of this hæmorrhage, and the tearing of the vessels which took place at the time, even although the sac was not fully ruptured, gave sufficient evidence by the pain and the shock, together with the previous history of the case, to warrant the conclusion that it was a case of extra-uterine, and probably of tubal, pregnancy. Of course, sometimes mistakes might be made in the diagnosis. But with the usual symptoms which are given, the history of the case, and the presence of the severe pain and the evidence of hæmorrhage, he did not think as a rule a mistake could be made. Dr. Pryor had spoken of a method of finding out whether there was disease in the other tube. That method was entirely new to the speaker, as he supposed it was to the other members present. By any ordinary method of examination, bimanually or otherwise, he had never been able to find out whether there was disease in the other tube in a case where he was perfectly convinced that there was a ruptured tubal pregnancy, for the very presence of the clots and the tumor were such, and so covered the field, that it was perfectly impossible to feel the other tube. The method Dr. Pryor spoke of, if it could be carried into effect, might eliminate that difficulty. As to removal of the uterus, if there is an ovary on the other side which is not seriously affected by any other disease, and the tube is healthy, they should be left, and the uterus also should be left; and it is by the abdominal operation especially that these conditions can be determined. In other words, unless he had performed the preliminary operation which Dr. Pryor has referred to, and examined the other tube and ovary through the vagina and found them diseased, he certainly would not remove the uterus in order to remove the ruptured tubal pregnancy; he would consider it unjustifiable, for the reason that in the majority of cases the other tube and ovary are absolutely perfect.

Dr. W. M. POLK said that the views of Dr. Mann were most opportune and reasonable, because a blind opening of the *cul-de-sac*, in cases of ruptured pregnancy, would in many instances be fraught with precisely the conditions mentioned, particularly if it is attempted

to empty the sac. Of course, if one is simply satisfied with emptying the sac and draining it off, leaving a process of atrophy to take place about the vessels, that is another thing; but it is entirely well known that a free opening under the sac under these conditions simply invites sepsis. He believed that cases which came within the exceptions made in the paper, in which Dr. Mann claimed an advantage for cœliotomy, could be treated if a thorough trial were given to the old attempt to evacuate those sacs, especially by an aspirator. It had been done in times gone by, and the sepsis which so frequently intervened caused people to decry it, but that was before the method of cleansing the vagina now resorted to was understood.

Dr. WYLIE said that the three or four cases that he had not reported in detail were cases where he had reason to believe that the large tumors were hæmatoceles, and in two of them he was sure they were extra-uterine. Operation was done by the vagina in all of them, because the women were in such bad septic condition, and all three made beautiful recoveries. He did not believe he would ever attempt any case by the vagina unless it was a suppurating case.

Dr. MANN (in closing) said that he thought an old hæmatocele which did not show an inclination to absorb, remaining unchanged for an indefinite period, with the patient suffering very much, could be cured very much more quickly by opening through the vagina. Whether these cases were all due to extra-uterine pregnancy or not was a question. He had operated in a number of cases with excellent results. As to Dr. Polk's suggestion to tap the sac in cases of tubal pregnancy, so as to drain them, he would say that he was old-fashioned enough to prefer electricity. A good many people laughed at it, but he had not yet given it up. If he had a case where he was perfectly sure of the diagnosis, and there were no signs of rupture, he would first try electricity, on the ground that it could do no possible harm, and it might do good, standing ready to operate in case of necessity. He had treated successfully eight or ten cases, but he could not be sure that they were extra-uterine pregnancy, because they all got well. He had had a few cases in which he was sure the diagnosis was correct, which had been cured in this way. The point in his paper which he wished to emphasize is that there are a few cases just on the borderland, where it is difficult to say whether it is best to open the abdomen or go through the vagina. In cases of doubt he should decide in favor of cœliotomy.

Official Transactions.

ARTHUR M. JACOBUS,
Recording Secretary.

THE STATUS OF GYNÆCOLOGY ABROAD.

GREAT BRITAIN.

Thirteen Cases of Strangulated Ovarian Cysts.

HARRISON CRIPPS (The *Lancet*, February 15, 1896) met thirteen cases of strangulated ovarian cysts in a little over one hundred abdominal sections. In a majority of instances the onset of symptoms suggesting strangulation was sudden, in the other it was of a sub-acute nature. The symptoms are so suggestive and typical that there should be little difficulty in making an accurate diagnosis. The condition, if left unrelieved, though not necessarily fatal, is one of extreme danger, while with timely surgical aid life is almost invariably saved. The effect of the twist varies somewhat, according to its tightness and the nature of the cystic contents. If the twist be only partial the veins become obstructed, while the arteries continue to pump blood into the tumor. The blood pressure in the tumor and in the capsule is so increased that hæmorrhage takes place. The cysts may become filled with blood, while a large hæmatoma may form in the capsular connective tissue.

When the twist is sufficiently tight to cut off the blood supply, secondary changes occur with more or less rapidity. From the study of recorded cases it would seem to be possible to have a twist of the pedicle, giving rise to sudden and acute symptoms which, nevertheless, may relieve itself by becoming untwisted and allowing the engorged veins to empty themselves.

Soon after a twist has occurred, and probably coincident with total cessation of the circulation within it, Nature seems to regard the cyst as a foreign body, and makes every effort to surround and incase the tumor with inflammatory exudation. If the tumor happens to be small and its contents simple cystic fluid, the cyst wall obtains sufficient nourishment from the adherent structures to maintain its vitality; but if the cyst be large, and if its contents are already purulent, or if there be much extravasated blood within it, the efforts of the neighboring tissues to adhere to and nourish it are ineffectual, and the whole cyst wall falls quickly into a state of gangrene, or may slowly soften in parts and give way. If the wall becomes gangrenous, or its contents are extravasated, acute peritonitis with death is the result.

With regard to diagnosis, the fact that a cyst can become twisted points to its having a long and comparatively narrow pedicle and being practically free from adhesions. In the majority of cases the patient will be aware that she previously has had a tumor, though it may have caused her little trouble. If the twist occur suddenly the patient is seized with severe abdominal pain, sometimes sufficient to make her feel faint, and generally followed by some vomiting. There is a diffuse tenderness over the whole abdomen. On abdominal examination the tumor may be felt of a globular outline, but generally of not a very large size, tender on pressure and has a somewhat firmer feel than the majority of ovarian cysts, can be moved from side to side, and is high up in the pelvis.

The symptoms somewhat resembling those of a twisted cyst may be due to a simple inflamed cyst, a ruptured cyst, an extra-uterine foetation, or a hæmatocele.

The treatment, fortunately, is very simple, for as soon as the nature of the case is suspected the abdomen should be opened and the cyst removed. The operation should be undertaken before the occurrence of acute peritonitis. Should this have occurred, it is difficult to save the patient.

Death occurred in but one of the cases recorded by the author. In this instance the delay had been too long, the cyst had burst, and at the time of operation there was acute general peritonitis.

GERMANY.

Pelvisfixation for Displaced Ovaries.

Dr. M. SANGER (*Centralblatt für Gyn.*, February 29, 1896) read a paper upon this subject at the meeting of the Obstetrical Society of Leipsic. He defines two degrees of descent: In the first degree of descent the ovary has reached the plicæ recto-uterinæ; in the second degree it has reached the bottom of the *cul-de-sac* of Douglas. The descent of the ovary may be congenital, but in the great majority of cases it is acquired, as by traumatism, falls, etc.; following the puerperium, subinvolution, relaxation, and elongation of the ovarian ligaments; changes of position of the uterus, inversion of the uterus, and abnormal enlargement of the mobile ovary. The author considers vaginal cœliotomy responsible for some cases of displaced ovaries. It is difficult to determine whether the swelling of a prolapsed ovary is primary or secondary. Torsion of the ovarian ligament sometimes occurs. The symptoms arising from displaced ovaries are periodical

or continuous pains referred to the ovarian regions; increased sensibility to pressure; painful defecation, with its inhibitory action on intestinal peristalsis; derangements in menstruation, especially ovarian dysmenorrhœa; the various hysterical neuroses, etc.

Spontaneous cure may result after a displacement of the uterus has been corrected, and sometimes from no apparent cause. The author believes that the ovaries are affected by the condition of the sigmoid flexure.

The treatment of displaced ovaries may be divided into non-operative and operative treatment.

The non-operative measures consist of direct reposition, with or without anæsthesia; this is often successful. Massage locally; regulation of defecation; the knee-chest position; pessaries; and vaginal tampons.

The success of these measures depends upon the adhesions about the ovaries.

Operative Measures.—These displaced ovaries were formerly removed, but of late efforts have been made to restore these organs to their proper places and functions, by opening cysts, etc., with a view to reducing their size. In some cases, after the position of the uterus has been corrected, the ovaries remain in the *cul-de-sac*. The idea occurred to the author to fix them to the lateral wall of the pelvis in the region of the ligamentum suspensorium. This he has done in two cases with very satisfactory results.

This operation the author calls *pelvifixura ovariorum*. He thinks that it will always be considered an accessory conservative operation, but it fills an operative indication that has been little considered.

FRANCE.

Enormous Multilocular Cyst of the Ovary; Removal; Cure.

DUMONT-LELOIR (*Arch. de gyn. et de toc.*, January, 1896) reports the following case: The patient noticed a swelling of the abdomen six months previous to operation. At the time of operation it had increased to an enormous size. Diagnosis of ovarian cyst was made. Upon opening the abdomen, firm adhesions were everywhere found. Four to five litres of a syrupy, brownish liquid were drawn off and the tumor removed with great difficulty.

The tumor, which filled the whole abdominal cavity, consisted of several cysts and a solid tumor about the size of a foetal head, which must have occupied the eighth iliac fossa.

Three days after the operation the patient became greatly distended with gas, with high temperature and pulse. This was relieved by repeated doses of calomel followed by sulphate of magnesium. Three days later the same symptoms appeared as the result of an error in diet. She was again relieved by the same treatment.

(G. H. MALLETT.)

OBSTETRICS.

UNITED STATES.

Incubation and Incubators.

S. MARX, New York (*Am. Médico-Surgical Bulletin*, March 7, 1896), says that the success of incubation has been greater when premature labor has been induced than when spontaneous, because the underlying cause of premature birth is apt also to produce in the infant inanition, or at least an asthenic state—*i. e.*, specific disease attacking the endometrium and decidua not only induces premature delivery, but disturbs the nutrition of the child.

Management of the Infant.—The pulsations in the umbilical cord should be allowed to cease before ligating, thus gaining three ounces of blood for the infant; this should be observed even if the child is cyanosed. Methods of resuscitation should not be severe. Spanking, swinging, and plunging in hot and cold water should not be employed, but a full hot bath and Dew's mouth-to-mouth insufflation should be tried—a few drops of brandy by mouth, or hypodermically, or by rectum, in hot water (f 3 ss. to f 3 j). The infant, wrapped in cotton, should be instantly transferred to the incubator.

Feeding should be conducted with great care as to quantity; from f 3 ij to f 3 ss. at a time is sufficient—either mother's milk or carefully prepared milk. Bathing should not be neglected. The child should be taken from the incubator each day, wrapped in the cotton, its clothes removed, and then immersed in a bath at 90° F. temperature. The cotton of the incubator can be changed meanwhile and will be heated by the time the child is returned. If the child continues to be weak and anæmic, strychnine should be given hypodermically in doses of $\frac{1}{1000}$ to $\frac{1}{400}$ of a grain every two to three hours. If cyanotic, nitroglycerin in doses of $\frac{1}{1000}$ to $\frac{1}{400}$ of a grain, hypodermically, once in thirty minutes to two hours' interval. As the effect is transient it has to

be repeated. Oxygen is also of great service, but must not be used constantly, as tending to hyperæmia. If the child is syphilitic, appropriate treatment must be instituted at once. In tuberculous conditions of the mother the child should have inunctions of cod-liver oil twice a day. Some premature infants do not require the incubator, while mature infants that are very feeble will derive great benefit from it.

The question as to when the child can be removed from the incubator depends on its general condition. When the heart action is uniform, cyanosis does not occur when removed from the incubator, the cry is vigorous, the eye wide awake, the limbs active, and the recessions of the diaphragmatic region ceases, the child is fit to live outside the incubator. The writer describes an incubator manufactured by Charles Truax, Greene & Co., of Chicago, Ill., which fills every indication. It consists of an oaken box; at the bottom is a metal pan filled with sand and containing a steam coil. Openings are made at top and bottom with valves for the entrance and exit of air. Outside is a small steam generator heated by either gas or an alcohol lamp. A wire-cloth basket is suspended in the box which can be padded with cotton; the top is supplied with a glass sliding cover. There is also a thermal alarm attachment which rings an electric bell at the range of 90° to 100° F., the average temperature maintained being 96°. A thermometer is also supplied.

GREAT BRITAIN.

Variation in Height of the Fundus Uteri above the Symphysis during the Puerperium.

T. B. STEVENS and W. S. A. GRIFFITH, London (*Trans. Obstet. Society of London*, vol. xxxvii, part iv, 1895), give the result of their observations at Queen Charlotte's Lying-in Hospital in determining the height of the fundus uteri during the puerperium by external measurements. The measurements are both vertical and horizontal through the abdominal walls, the vertical being the one to be relied on as the transverse is very difficult to obtain. The top of the symphysis pubis is taken as the fixed point from which to measure the height of the fundus uteri. A common "foot" rule is made use of, the end being pressed against the upper border of the symphysis. The top of the fundus being found, the finger makes a tangent with it and the rule. The distance from the symphysis can then be read on the rule in inches. The bladder and rectum should be empty, the uterus in the median line and anteverted. The uterus should be

in a state of contraction at time of measurements ; the measurements should be taken at the same hour each day. An ordinary temperature chart can be used, to show the curve, by making the 100° line represent the pubes, and each degree above represent one inch.

The sources of error are : 1, distention of the bladder ; 2, distention of the rectum ; 3, distention of the small intestines ; 4, prolapse of the uterus ; 5, retroversion of the uterus ; 6, abnormally high uterus ; 7, unusual bulk of uterine muscle ; 8, excessive lateral obliquity of the uterus. The pathological conditions which interfere with the involutions of the uterus, and therefore with the descent of the fundus, are :

1. Retention of portions of placenta and membrane, blood clots, and lochia.

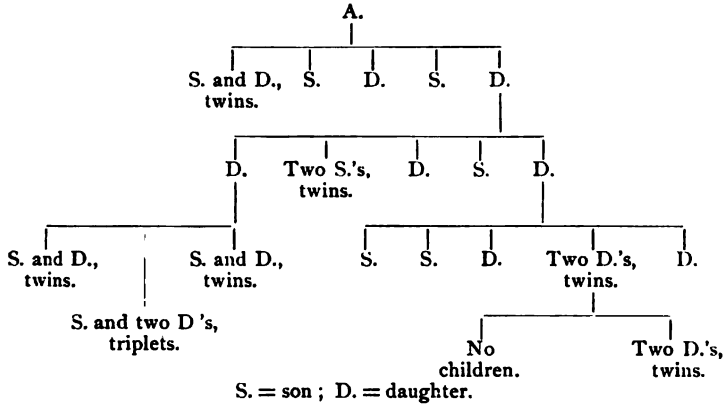
2. Putrid decomposition within the uterus.

According to the average chart, the rate of involution is represented by a fall of two inches during the first six days. After the eighth day the rate of involution is very slow. The average height above the pubes on the first evening is five inches and a quarter, the highest individual curve noted beginning at seven inches, the lowest at three inches and a half. On the fourteenth day the average height is two inches, the variation being from one to three inches. It has not been possible to obtain the exact day that the uterus sinks behind the pubes, as most of the cases leave the hospital on the fourteenth day. In one case, on the eighteenth day, it was one inch above the pubes. The measurements were taken morning, noon, and evening, and it was found that there was a morning rise and an evening fall, the curve indicating that involution did not progress as rapidly during sleep as during waking hours. The curve in primiparæ was lower in every case by half an inch than in multiparæ. Age exerted the same influence ; the older the woman the higher the curve. In cases of retained products and clots, curetting and intra-uterine washing exerted a marked effect in reducing the curve. With regard to lactation, those cases in which there was complete absence of lactation the progress of involution was rapid. If lactation was performed, involution was rapid the first few days, diminishing rapidly later. Prematurity of labor delayed involution. Prolonged labor delayed involution for the first few days.

The Influence of Inheritance on the Tendency to Twins.

R. A. BREMNER (*Lancet*, February 8, 1896) gives the following family history, vouched for by a number of relatives. He attended

the mother of the last pair of twins. There is no history of twin births in any of the husbands' families :



Some of the other daughters have had children ; only those indicated have had multiple pregnancies.

A New Theory as to the Position of the Fœtus in Utero.

MURDOCH CAMERON, Glasgow (*British Med. Jour.*, February 29, 1896), bases his views upon his experience in Cæsarean section, showing that in dorso-posterior positions the placenta was attached to the anterior uterine wall, while in dorso-anterior positions it was attached to the posterior wall—viz. :

(a) In an O. L. A. position the placenta was found on the posterior wall to the right side.

(b) In an O. D. A. position the placenta was on the posterior wall to the left.

(c) In an O. D. P. position the placenta was on the anterior wall to the left.

(d) In an O. L. P. position the placenta was on the anterior wall to the right.

The fœtus and placenta will be found in the same relation in pelvic positions. This arrangement favors the life of the child during labor, as the placenta is not so liable to compression as if in contact with the bulk of the fœtus. He assigns no reason; simply calls attention to the fact that the child not only holds a definite position in reference to the pelvis, but also to the placenta.

Four Cases of Early Extra-uterine Gestation.

ALBAN DORAN (*Lancet*, March 28, 1896) reports four cases of early extra-uterine gestation, of which the following is a summary :

Cases of Early Extra-uterine Pregnancy.

No. of case.	Age.	Married or single.	Children and last confinement.	Catamenia and state of breasts.	Last period.	Hæmorrhage apparently not connected with period.	Decidua.	Symptoms, besides menstrual irregularities or hæmorrhages.	Condition discovered at operation.	Catamenia after operation.
1	25	Married (3 years).	One (eighteen months); no abortion.	Catamenia previously regular. Breasts full; nipples prominent.	Fourteen weeks before operation; normal.	Occasional spot or two of blood. A month before operation blood and matter came away (probably from rectum — operation for fistula two years before).	Nothing like decidua ever detected.	Several attacks of pain within last two months; pain and syncope one week, then tender swelling in right iliac fossa, rising above symphysis; acute attack of pain with anæmia and syncope, when operation was performed.	Ruptured cyst of infundibulum of right tube. Peritoneal cavity full of clots. Cyst removed, left appendages normal.	Reappeared fourth day after operation; again thirty-two days after operation; regular for last eight months.
2	40	Married (14 years).	One (thirteen years); no abortion.	Catamenia regular. No changes in breasts.	Eleven weeks before operation; profuse, not very painful.	"Show" sixteen and eight days before operation.	Shreddy structures, mixed with recent clot, passed eight days before operation.	Violent pain in right iliac fossa (preceded by two days of local tenderness) a month before operation; pallor, collapse, swelling in right fornix, frequent paroxysmal attacks, with faintness, fever, etc.; emaciation; anæmia not marked.	Pelvis contained dark blood. Cyst of isthmus of right tube ruptured; laceration closed in by firm adhesions to intestines and vermiform appendix. Removed.	Reappeared on the fortieth day after operation. Regular ever since.

3	18	Single.	No evidence of former pregnancy.	Catamenia very regular. No changes in breasts.	One month before operation; profuse "show" (see next column).	Uterine hemorrhage twice in the two months before operation. (Patient's statements not reliable.)	Nothing like decidua detected.	Two months before operation sudden attack of severe pain in pelvis following a fit of passion; tumor developed in right iliac fossa; marked anæmia, but of long standing.	Thin-walled cyst full of tarry blood in infundibulum of right tube. Omentum, vermiform appendix, and coils of small intestine adhered. Cyst removed. Chorionic villi found in clot.	Reappeared six weeks after operation. Continues regular one year after operation.
4	34	Married (13 years).	One (ten years); no abortion.	Catamenia regular, but scanty. Breasts flaccid.	Two weeks overdue when acute symptoms set in.	Coffee-colored discharge for six weeks.	Nothing like decidua detected.	Pelvic pains ten years (since sole confinement); acute attacks twice in last two years; severe pelvic pain, nausea, and retching came on suddenly when the catamenia were two weeks overdue; coffee-colored discharge began next day; firm elastic swelling on right side of pelvis, reaching to umbilicus; uterus $2\frac{1}{2}$ in., pushed forward and upward.	No operation. After three weeks' rest in bed the swelling became very much smaller; eight months later it was not larger than an egg, and patient was perfectly well.	(No operation.) Quite regular since subsidence of swelling.

(T. W. CLEAVELAND.)

PÆDIATRICS.

UNITED STATES.

Chronic Interstitial Nephritis during Early Life.

H. ASHBY (*Pædiatrics*, March 1, 1896) reports the following case : Arthur G., aged twelve years. Previous history : Patient had measles at the age of three, since which he has had a discharge from the left ear ; chorea several years ago ; scarlatina uncertain. For three months he has been "always eating and drinking" ; has been dull, and has had much frontal headache. One month ago he had several fits, the mouth being drawn and the left side especially affected ; another series of fits three days ago. Admitted, October 15th. Physical examination : Patient well developed but badly nourished. Purulent discharge from left ear, with almost complete deafness. No paralysis. Faint systolic bruit at apex, left ventricle hypertrophied, impulse heaving. Pulse 132, not easily compressible. Urine abundant, of light color, specific gravity 1010, much albumin. No eye changes. October 23d : Patient had six or eight fits, in which the eyes turned to the right, and there were unconsciousness, tonic spasms of the limbs, retraction of the head, and facial twitchings ; dullness afterward ; headache severe. October 24th : Vomiting, headache, and mental wandering ; breath had an ammoniacal smell. October 27th : Active delirium resembling that of alcohol ; diarrhœa. October 28th : Death after twenty-four hours of unconsciousness. *Post mortem* : No œdema. Heart weighs eight ounces ; left ventricle hypertrophied ; edges of mitral valve much thickened ; muscle pale, kidneys, weight, one ounce and a quarter each ; capsules adherent, surface granular ; cortex narrowed ; microscopically, tracts of fibrous tissue containing compressed and degenerated glomeruli and tubules ; tubules dilated and with flattened epithelium.

The author has met with only two other cases of contracted granular kidney in children, that were verified by autopsy. He thus reviews the three cases : In all, the appearance of the kidneys was very similar, and the left ventricles were hypertrophied without marked dilatation. All three were observed for the first time a few days before death. In one the history was imperfect. In two there was a history of severe frontal headache, thirst, and frequent urination for some months. In one (the above) there was a history of fits.

In one only was there œdema, and that during the last two or three weeks. In the two cases in which urine was obtainable, its specific gravity varied from 1010 to 1015, and it contained about fifty per cent. albumin by volume. Regarding causation: In one case the father was a drunkard, though the patient had never taken alcohol. (It is interesting to note a similar history in a girl of twelve who had cirrhosis of the liver.) One case was suffering from late rickets; and the author has seen in another case of late rickets symptoms which seemed to point to a kidney lesion of this sort.

Dr. John Cooper's Case of Ischiopagus.

A. JACOBI (*Archives of Pædiatrics*, March, 1896) received the following account of the case from Dr. Cooper: Father and mother are healthy and have one normal child. The labor was quick and easy. The weight of the children at birth was twelve pounds; their length twenty-two inches. There was one umbilical cord. The bodies were continuous in the same planes, placed literally end to end, joined at the pelvis. There were two well-developed legs and feet on each side of line of fusion at right angles with the bodies. Both children were females, the genital organs and anus being situated on the side of the line of union, but normally placed with reference to the legs on either side; those of each child were on its right side between its right leg and the left leg of the other. Osseous union was at the tuberosities of the ossa ischii. There was no circulatory connection, except of the capillary vessels, at the point of union; no nervous connection, hence their mental phenomena were quite distinct. One had a severe bronchitis, while the other remained well. Both children developed equally. The faces displayed the same intelligence. They cried (shedding tears) and smiled as early as normal infants. They had perfect use of their lower extremities. Adduction and abduction were normal. When eight months old, both took measles at the same time and lived nine or ten days, one dying forty minutes before the other.

Dr. Jacobi remarks that there are transitional forms from a simple dicephalous tetrabrachius to ischiopagus. In the latter, when complete, the abdominal integuments are in common, and the genitals are united mutually like the pelvic bones. The viscera are double. Vagina, bladder, and rectum may be confluent. Sometimes there is atresia of the anus and of the urethra, and a cloaca is persistent. Placenta and cord have been single in all recorded cases but one; in that case the anus and genitals were single; there were three lower extremities, the third being rudimentary and containing a double set of the larger bones.

Gangrene following Measles.

G. E. LOCHNER (*Albany Med. Annual*, April, 1896), apropos of two cases of gangrene following measles—the one of the mouth, the other of the vulva—discusses the subject as follows: The causes of gangrene, as given by Tillmanns, may be thus summed up: (a) Cessation of the arterial blood supply; (b) obstruction to the venous outflow; (c) stasis in the capillary vessels; (d) the direct action of destructive agents upon the tissue cells. General and local depression favors the process. Four zones may be mapped out in every case of noma: (a) the destroyed tissue; (b) an infiltrated zone, in which the cellular tissue is destroyed, only a homogeneous substance, in which are micrococci, being left; (c) a zone of increased connective tissue, of which the cells are in active division and the blood-vessels closed by thrombi and micro-organisms; (d) healthy tissue. Noma of the cheek, then, results from a capillary thrombosis produced by a gangrenous stomatitis, which is in turn caused by bacteria. Gangrene of the mouth is most frequent between the second and sixth years, and by far the most frequent antecedent disease is measles; it may appear in any part of the mouth. Gangrene or noma of the vulva begins with reddening and infiltration of the labia and a discharge of ichorous serum; vesication, sloughing, and rapid gangrene follow. It appears to be infectious, and occurs in persons whose vitality is low, most frequently in badly nourished children as a sequel of the eruptive fevers. Treatment consists in stimulants and nourishing food, while the sloughing process is hastened by the actual cautery, knife, or escharotics, and the parts are kept covered with antiseptics, all necrotic tissue being removed by frequent antiseptic washing.

A Case of Apyretic Croup.

A. CORDES (*Pædiatrics*, April 15, 1896) reports as follows: R. B., aged twenty-one months, presented gradually increasing stridor and dyspnœa, but no visible membrane or enlargement of the cervical glands. There was no temperature until the fourth day, when it reached 100° F. On this day ten cubic centimetres of Roux's serum were injected. The dyspnœa increasing, early on the fifth day tracheotomy was done and a piece of membrane expelled. That evening the temperature rose to 102.3° but quickly fell to 101°. Upon the following day a second injection (ten cubic centimetres) was given.

(CHAFFEE.)

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THE TREATMENT OF EXTRA-UTERINE PREGNANCY,
RUPTURED IN THE EARLY MONTHS, BY
VAGINAL PUNCTURE AND DRAINAGE.*

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At a meeting of the Johns Hopkins Hospital Medical Society, October 23, 1893, I advocated the treatment of ruptured extra-uterine pregnancy by a vaginal opening for the removal of the products, followed by drainage. My first case was operated upon October 27, 1892, and was one of the intraligamentary form. I made an exploratory cœliotomy, and found a mass on the right side, fourteen by ten centimetres in size, to which the whole omentum was adherent, dragging down the transverse colon; there were also dense adhesions to the small intestine. The uterus lay to the left. The peritonæum at the brim of the pelvis posteriorly passed directly on to the sac, without dipping into the pelvis, and anteriorly and laterally it was lifted up to such an extent by the sac that it lay in direct contact with the anterior abdominal wall four centimetres above Poupart's ligament.

As a complete enucleation of this subperitoneal mass was out of the question, I determined to drain it. The colon was first freed by tying the omentum off from side to side. A free incision was

* Read before the American Gynæcological Society, May 27, 1896.

then made into the sac above Poupart's ligament, and sixty cubic centimetres of fluid blood and two hundred and forty cubic centimetres of clots removed. The sac was washed out and drained with gauze. There was no marked hæmorrhage; the duration of the entire operation was thirty-seven minutes.

The patient made an uninterrupted recovery, leaving the hospital on the thirty-second day.

The next case occurred February 22, 1893. The patient, a stout woman, was anæmic and rapidly losing flesh, and had a dry tongue and lips and sore buccal surfaces. She suffered from difficult, painful micturition, and was constipated, passing blood and mucus from the rectum. The abdomen was tender on pressure and markedly distended. The pelvis was choked with a tender mass, extending 7.5 centimetres above the symphysis.

The abdomen was opened March 1, 1893; the sac filled the right posterior quadrant of the pelvis where the peritonæum appeared to go directly from the brim of the pelvis on to the top of the sac.

I tapped the sac through the abdominal incision, and drew off some foetid gas; I then closed the puncture hole with two sutures, and explored by the rectum, but failed to find any opening there, although a few clots of blood escaped.

I then made a free opening into the vault of the vagina and evacuated the clotted blood and placenta filling the sac, and drained it *per vaginam*. The patient made a rapid recovery, in spite of her bad condition. For two weeks there was some fæcal discharge by the vagina. She left the hospital well in the sixth week.

The next case is the one reported in the *Johns Hopkins Hospital Bulletin* for November, 1893. The patient was in a critical condition, with a feeble pulse, and on opening the abdomen I found such extensive adhesions that enucleation under the circumstances was impossible.

The question therefore arose whether to abandon the case or to try the method so successful in the two previous cases. I decided upon the latter plan, and made a careful bimanual examination with one hand in the abdomen and the other in the vagina, outlining perfectly the relations of the sac. I then pushed the tumor down and the vault of the vagina up until it met the sac, when I thrust a pair of sharp-pointed scissors into the tumor through the posterior *cul-de-sac*. The opening was enlarged to an inch in diameter, the

debris of clotted blood evacuated and the sac washed out by means of a glass douche nozzle, and afterward drained with gauze. The patient made a rapid and complete recovery.

I have since operated in this way on ten additional cases of extra-uterine pregnancy.

I have had, therefore, thirteen cases in all treated by vaginal puncture and drainage without any untoward sequelæ. One patient, comatose when operated upon, died a few days later of nephritis.

Class of Cases treated.—Cases suitable for this mode of treatment are the extra-uterine pregnancies which rupture in the early months, including therefore the vast majority of all cases. Since I have begun to follow this mode of treatment, all the cases which have come to me have been of this class.

Vaginal puncture and drainage is not a suitable plan of treatment (a) in an unruptured extra-uterine pregnancy, or (b) in a recently ruptured one, or (c) in advanced extra-uterine pregnancy.

I do not compare this operation with the removal *per vaginam* of the dead foetus presenting at the vaginal vault (elytrotomy) in an advanced pregnancy, followed by drainage of the sac, nor do I compare it with cases in which suppuration of the sac has occurred, which belong rather to the pelvic abscesses, although I treat both classes of cases in precisely the same way. These cases are referred to by Hermann (*Trans. London Obstetrical Society*, vol. xxix, p. 429), who states that, when the effusion of blood is followed by pyrexia, the indications for incision of the vagina are the same as those in hæmatocele from any other cause. He says that, when interference is called for to arrest hæmorrhage soon after rupture has taken place, abdominal section is more likely to succeed than vaginal.

The class of cases to which I refer are not clearly defined by Herrmann, and are the commonest of all; they are those in which a succession of ruptures has occurred, each time adding to the accumulation of clots in the abdomen.

I have only included one suppurative case with clots on my list, and that simply to report all the cases I have had. In the *American Gynecological and Obstetrical Journal* (May, 1896, p. 598), Dr. G. W. Reynolds reports a case of an extra-uterine pregnancy which he felt certain had ruptured into the broad ligament, and in which he removed a three months' foetus with placenta and cord by a vaginal incision. A gauze drain was inserted, and the patient rapidly recovered.

I pursue the following method in performing this operation:

1. *Examination.*—After a careful consideration of the history, a thorough examination of the extra-uterine sac is made bimanually, both by the vagina and by the rectum, in order to determine its exact relationship to the vaginal vault.

2. *Position of Patient.*—The patient is then put into the lithotomy position, and the vagina thoroughly cleansed.

3. *Fixing the Cervix.*—The posterior lip of the cervix is caught with tenaculum forceps and drawn slightly forward.

4. *Opening the Sac.*—With the index finger resting on the prominent part of the sac posterior to the cervix to act as a guide, a pair of sharp-pointed scissors is thrust through the septum into the sac, taking care to follow the line of the axis of the pelvis. If this is not done, there is risk of puncturing the rectum by carrying the points too far back. If the rectum lies near to the vaginal vault, it is best to protect it from injury by the middle finger resting on the sac in the bowel and the index finger on the vaginal vault, thus straddling the perinæum. If the sac does not lie so close to the vaginal vault as to be easily felt there, it may often be brought into relationship with it by the pressure of an assistant's hand above when the puncture may be made.

5. *Enlarging the Opening.*—When the scissors have entered the sac they are spread and withdrawn wide open. This makes the hole bigger. A uterine dilator is then introduced, and the opening stretched to 1.3 to 3.5 centimetres in diameter.

6. *Opening the Sac.*—As soon as the scissors are spread, a little stream of dark telltale blood runs down the vagina confirming the diagnosis. After dilating the opening, the sac is emptied of blood clots, placenta, and foetus by the index and middle fingers. This is done with extreme care, using the fingers within the sac, and assisting their action by the other hand employed outside to make counter-pressure through the abdominal wall. In this way the sac is freely handled, its various parts kept within reach, clots are detached, and the contents removed until nothing but a shell remains—all without opening the peritoneal cavity.

Should the peritonæum be opened accidentally, no harm will result if the sac is well cleaned out and efficient drainage is used.

If the fingers possess a good tactile sense, the rough limiting walls of the sac and the adhering clots will be easily differentiated. I have several times recognized the firm, round tube casts, and

brought them out broken up; the rounded sides of the pieces showed plainly that they had formed part of a cylinder.

7. *Washing out the Sac.*—If the sac is well closed off from the peritonæum, it is a help in bringing away the blood clots to wash it out at intervals with a normal salt solution; I do this also at the end of the cleansing process, before packing.

8. *The Gauze Drain.*—The sac is then drained by a strip of plain or washed iodoform gauze, about three centimetres wide, stuffed loosely into its cavity with a packer. The gauze must fit loosely, so as not to stop the outward flow.

9. *After Care.*—I leave the gauze in for three or four days, during which time there may be a free serous flow. I then day by day withdraw it, and in from five to seven days remove it altogether, and then daily wash out the sac with a boric-acid solution, putting a piece of gauze into the opening each time to keep it from closing too fast.

In this way the sac contracts and closes in from two to six weeks, often without any evident suppuration, and in all cases without any marked purulent discharge.

In four cases out of the thirteen I opened the abdomen before evacuating and draining the sac, by the vagina in three of them, and above Poupart's ligament in one. I did this in the first two instances expecting to enucleate the mass by the abdomen, but, finding that this would greatly endanger the patient's life, I turned to the vaginal route.

With my present established technique I find it but rarely necessary to open the abdomen. I did this, however, in one of my most recent cases (No. XII), in my Sanatorium, because the history of rupture was so negative, and the encysted mass of blood at the left uterine cornu formed such a well-defined tumor, that I felt doubtful whether it might not be an unruptured extra-uterine pregnancy. On opening the abdomen, and finding the sac well covered in by sigmoid, rectal and vesical adhesions, I evacuated it *per vaginam*, and drained it as usual.

The Advantages of this Operation.—The one great advantage is, that, in accordance with the most recent and best gynæcological practice, none of the pelvic structures are removed while the hæmatoma is opened, evacuated, and drained. I would anticipate any objection by stating that my patients have all recovered perfect health, and there have been no untoward sequelæ.

A further advantage of great importance is the fact that a seri-

ous abdominal operation is often avoided, and the adhesions walling the sac in are let alone, while it is simply, quickly, and safely opened by the vagina.

In several of my cases the patients were in such condition that they could not have survived any prolonged abdominal operation.

The vaginal operation in this way reduces the mortality.

The dangers of the operation are (1) the possibility of a mistaken diagnosis, (2) the risk of opening the peritonæum, and (3) the risk of a fatal hæmorrhage, (4) as well as the liability to sepsis through the open vaginal vault.

Although I made a correct diagnosis of extra-uterine pregnancy in each of the thirteen cases here reported, I diagnosed this condition in two cases where it did not exist.

One was a dermoid cyst about as big as my fist, which I punctured, evacuated, and removed, and the other was a pelvic abscess, which I also opened and drained. Both cases recovered.

Hæmorrhage is the most serious risk incurred, and the query naturally arises why it does not more frequently follow the opening of the sac, the detachment of the clots, and the relief of the pressure they afford the sac walls. The answer to this must be that the vessels are filled with firm thrombi, and all tendency to active bleeding is past.

In the history of the patient who bled persistently from the vaginal puncture, necessitating the immediate removal of the sac by the abdomen, there was nothing to indicate anything different from the five preceding or the six cases following. She was forty-one years old, the mother of six children, the youngest two years and a half old. About three months before I saw her, at a menstrual period, she was suddenly seized with a sharp pain in the lower abdomen, and became very faint, without losing consciousness. There was a mere "show" at the time, but after the pain she had a free bloody discharge for four weeks. The abdomen was enlarged and tender, and she had three attacks after the first, and was compelled to go to bed each time. I found her greatly debilitated and anæmic, with constipation, and a pulse of 100. A large globular mass filled both sides of the pelvis, being especially prominent on the right side.

The sac was punctured by the vagina, and the clotted blood and a three months' foetus removed. This was followed by a free discharge of bright arterial blood, which oozed persistently out of the incision, and could not be controlled by packing.

I therefore at once opened the abdomen, and, finding the tubes and ovaries so densely matted together with the uterus, I removed them all by hysterо-salpingo-oöphorectomy, bringing up the ectopic sac with its placenta; seven hundred cubic centimetres of salt solution was infused into the cellular tissue to make up the loss of volume in the circulation.

The patient was discharged on the twenty-ninth day completely recovered.

On account of the possibility of this accident, I insist that the operator should always be prepared to open the abdomen if necessary when he undertakes to evacuate the sac by a vaginal opening.

The following carefully prepared records of my cases have been arranged by Dr. J. E. Stokes, of the Johns Hopkins Hospital:

CASE I:—Mrs. F. B. W., admitted October 23, 1892, aged twenty-two years; white; married one year; O-para; no miscarriages.

Past Health.—Good. Had diphtheria when quite young; no sequelæ noted. For last year has been feeling “drowsy” and “out of sorts.”

Menstrual History.—First menses, fifteenth year; regular; monthly flow scant, lasting six days; pain marked first day.

History of Present Complaint.—Patient last menstruated twelve weeks ago—*i. e.*, six weeks before present attack. Menstruation normal. Early morning of the day of the attack patient had a slight bloody discharge *per vaginam*; later during that morning, while walking across the yard, was seized with a sudden, sharp pain in right iliac region. She immediately went to bed, the pain continuing for the following five hours. No chill; nor did she appreciate any rise of temperature. The attacks of pain have been more or less constant, though diminished in severity and frequency, of late. The last marked attack was ten days ago, lasting four hours.

Immediate Condition.—Anæmic; slight bloody discharge; pain in right iliac region, paroxysmal in character; urine normal.

Diagnosis.—Extra-uterine pregnancy; right tubal rupture.

Operation, February 7, 1892.—(1) Exploratory cœliotomy, followed by (2) extraperitoneal incision into sac above Poupart's ligament. Removal of 240 c. c. of clotted blood. Pack introduced; time, thirty-seven minutes.

1. *Median incision* 10 cm.; walls very vascular; peritonæum

dark, blackish in appearance; 60 c. c. fluid blood in cavity. Sac exposed on right side invested by whole omentum, which displaced transverse colon downward. Sac globular, about 14 cm. by 10 cm., corresponding to normal position of tube. Flat, vascular, dense adhesions to small intestines; peritonæum from brim of pelvis posteriorly goes directly over on to sac, and laterally over on to abdominal wall about 4 cm. above Poupart's ligament. Whole omentum doubly ligated and cut off close to transverse colon.

2. *Lateral incision* 2 cm. above and parallel to Poupart's ligament, 5 cm. in length. Deep epigastric artery and vein exposed at its middle and ligated; sac opened; 240 c. c. clotted blood and shreds of membranes evacuated; sac washed out; no fresh hæmorrhage. Pack introduced: iodoform gauze, five pieces, 44 cm. in length. Pack removed eighth day, small amount of bloody discharge coming away.

Convalescence uninterrupted. Discharged thirty-second day. Result, well. Slight sinus an inch to an inch and a half in depth at seat of lateral incision.

CASE II.—Mrs. L. C., admitted February 22, 1893, aged thirty-five years; white; married fourteen years; VI-para, children aged from twelve and six years. Labors easy; usually in bed a week; no post-puerperal trouble; no miscarriages.

Past Health.—Has always been perfectly healthy.

Menstrual History.—First menses, eleventh year; regular; monthly flow normal in amount, lasting three to seven days; painless.

History of Present Complaint.—Missed menstrual flow in November—*i. e.*, three months ago. In December, at the time when regular period should appear, she first began to have severe bearing-down pains, resembling those of labor, and at the same time passed three clotted, fleshy masses. Since the passage of these clots has had a constant thick, blackish discharge from vagina. At the same time pain has been sharp, cramplike in character, with a severe backache, compelling patient to remain most of the time in bed. For last three days discharge has been yellowish in color.

Immediate Condition.—Has lost flesh rapidly; appetite poor; tongue dry and red; buccal surfaces of cheek sore; lips dry and cracked; anæmic; slight yellowish tint to skin; bowels very constipated; micturition difficult and painful. Urine thick and very yellow in appearance; on analysis, normal. At times passes blood

and mucus from rectum. Abdomen exceedingly tender and sensitive to pressure.

Night before operation patient became greatly excited, rising up in bed, moving head from side to side, working arms and legs up and down, and crying. Condition one of marked excitability.

Examination.—Abdomen markedly distended; resonant, except over lower part, where the resonance is impaired; outlet relaxed. Cervix just within outlet superficially soft, but in fact quite hard. Uterus seems to be anteflexed, fixed in position. Pelvis on right and left side posteriorly, filled up with a mass which extends up above pelvis about three inches, most marked on right side; very sensitive.

Diagnosis.—Extra-uterine pregnancy; right tubal rupture into rectum.

Operation, March 1, 1893.—1. Exploratory coeliotomy, with inspection of sac. 2. Puncture and drainage of sac *per vaginam*.

(1) Incision 12 cm. through very fat walls 8 cm. thick. Sac on right side filling right posterior quadrant of pelvis, top of sac passing directly over on to peritonæum above brim of pelvis. Also no cavity posteriorly, but anteriorly to sac depth of pelvis but little affected. Uterus flat on right of cyst. Tapped sac, drawing off foetid gas. Closed tap hole with two silk sutures, then examined *per rectum*. This was followed by free flow of small clots. No opening could be felt lower, although cyst was hard on rectum above utero-sacral ligaments.

(2) Free opening next made into vault of vagina; clots and placenta cleaned out; sac packed to drain *per vaginam*.

Convalescence rapid and uninterrupted. For the first two weeks succeeding operation had discharge of fæcal matter *per vaginam*. Discharged on sixth week, well; no pain; little or no vaginal discharge for a week; mental condition normal.

CASE III.—M. S. L., admitted September 15, 1893, aged twenty-seven years; white; married eleven years; IV-para, from eight to four years; labors easy, non-instrumental; remained in bed fourteen days; no post-puerperal difficulty; two miscarriages; no trouble.

Past History.—Good; scarlet fever during adult life; has done "farm work" for several years.

Menstrual History.—First menses about fourteenth year; regular; monthly flow scant, lasting three days; no pain.

History of Present Complaint.—Patient menstruated on July 1st

—i. e., nine weeks before present trouble; flow was moderate in amount, lasting three days; pain more marked than ever before—dull, aching in character, through abdomen generally. August, menstrual flow absent, though had pain, and abdomen seemed swollen. In September flow commenced; was very profuse, but was not accompanied by any pain. Took medicine to check it; no lumps or clots. At no one time has patient had any severe paroxysm of pain, nor has she felt faint. The pain which started up in August—at the time she should have had her “period,” and which has continued up to present time—has been a burning, stinging one in character, with a pressing-down sensation through hypogastric region.

Immediate Condition.—Patient pale and somewhat anæmic; bowels constipated; no urinary difficulty; analyses normal; pulse, 125; temperature, 100.6°. Talks very irrationally at times; seemingly in a semi-delirium condition.

Examination.—Abdomen markedly distended; skin above umbilicus cracked and fishlike in appearance; darker than surrounding area; greatest fullness in epigastric region.

Mensuration.—From umbilicus to ensiform, 16 cm.; from umbilicus to pubes, 17 cm.; greatest circumference at umbilicus, 76.5 cm. On palpation, whole abdomen softish and sensitive. In suprapubic region there is a hard and very sensitive mass extending about 11 cm. above pubic arch. Examination *per vaginam* abandoned on account of extreme tenderness.

Diagnosis.—Extra-uterine pregnancy, tubal.

Operation.—Puncture and drainage of sac *per vaginam*; duration, eight min. +. Patient first examined under ether. Prominence over symphysis about 8 × 6 cm., and raised about 2 cm. Tympanitic on percussion. *Per vaginam*, cervix crowded forward in pelvis, and posterior to this an ovoid, bulging, fluctuating mass, apparently, on percussion, in direct relation to prominence over symphysis. Then bulging mass posterior to cervix aspirated and about 120 c. c. fluid blood evacuated. Sharp-pointed scissors then plunged in and withdrawn, opened, discharging blood and “handfuls” of dark and slate-colored clots. Prominence in abdomen then almost disappeared. Opening posterior to cervix then made about 4 cm. broad. Sac washed out with glass irrigating nozzle, followed by escape of large clots. Cavity collapsed; found to fill whole pelvis and to rise up in abdomen several centimetres

above superior strait. Walls smooth. Pack not introduced into cavity, vagina being only packed. No hæmorrhage.

Convalescence uninterrupted. Pack removed second day, perfectly sweet. Marked diminution in pain. The night of the second day patient had a slight hæmorrhage; no systemic effect noted. After this, patient's improvement was marked and continuous. Discharged on thirty-sixth day, well. Face full; complexion good; mental condition normal; no pain; no vaginal discharge; "feels well and strong."

CASE IV.—Mrs. L. S., admitted February 27, 1894, aged twenty-six years; white; married four years; O-para; no miscarriages. Health since marriage much the same as before it.

Past History.—Has lived rather a sedentary life; has been strong and active. Two uncles and one aunt died of tuberculosis, one great aunt of cancer.

Menstrual History.—First menses at eleventh year; regular; monthly flow scant, lasting five days; no pain.

History of Present Complaint.—Patient last menstruated two weeks ago; flow freer than usual, but no pain. Flow in December last—i. e., three months ago—was very slight. In January, the succeeding month, not any at all. Up to November, 1893, menstrual history was normal, periods occurring about first week in every month. November, it appeared on the 14th, same as usual, save it was offensive, only having been so once or twice before. Felt perfectly well; no pain. In December menstruated on 22d; less in quantity; still offensive; three weeks overdue. On the night of the 29th, while playing cards, feeling perfectly well, patient bent over the table to make a "play"; just as she did so was seized with a sharp, shooting pain, knifelike in character, in left hypogastric region, which seemed to pass from front to back. Previously to this paroxysm had had no tenderness or sensitiveness in this region. Pain was so acute that it made patient start up. She immediately became giddy, everything was blurred before her. She did not completely lose consciousness, but was compelled to lie down, however. After a moment or two the acute pain ceased, followed by a dull aching and feeling of soreness through that side, which became slightly easier by next morning. During the night patient had a slight hæmorrhage from vagina; no casts or clots passed. Patient remained in bed the following day on account of pain and nausea.

On the night of the 31st, two nights subsequent to the initial

paroxysm—patient during this time having been more or less under the influence of an opiate, as pain and tenderness over entire abdomen were so marked—she got up from her bed to urinate, and remembers just having placed herself upon the vessel, after which she knew of nothing until she found herself in bed. She was not conscious of any increase in the pain or any feeling of fainting. She had been found lying upon the floor unconscious, face pale and blanched, and had been put to bed; feeling of weakness was not marked. During following month no flow; pulse fair; temperature, 103° ; abdomen exceedingly painful and tender, very tense and hard; bowels constipated; would lie on her back with knees drawn up; marked nausea and vomiting. In February patient became better. Flow freer than usual.

Immediate Condition.—Well nourished; bright complexion; urination painful and frequent; analyses normal; locomotion painful and difficult; slight offensive leucorrhœal discharge; pain dull, aching in character, in left ovarian region, extending down thigh; area of hardness in abdomen to right of median line; temperature, 99° ; pulse, 100.

Examination.—Abdomen full, symmetrical; no lineæ albicantes; on palpation, walls thick, extending from umbilicus to pubes, and on either side, about 10 cm., is felt a hard, smooth mass, non-fluctuant; abdomen elsewhere negative. *Per vaginam*, outlet slightly relaxed; cervix within 2 cm. of outlet; lips flattened and soft. Uterus anterior to a mass slightly enlarged; the mass fills entire pelvis; somewhat movable, smooth surfaces, non-sensitive; seems to extend slightly more to right side; lateral structures not outlined.

Diagnosis.—Extra-uterine pregnancy. Tubal rupture.

Examination under Ether.—A cystic tumor, convex above and almost rising to umbilicus, about 14×18 cm., more on right side. Fluctuation more or less boggy. *Per vaginam*, whole pelvis choked by mass which is distinctly fluctuant and projecting down into posterior fornix, jamming uterus in anteposition behind symphysis, so that cervix is felt about 3 cm. behind outlet, and fundus vertically above this, with surprising distinctness.

Operation, March 1, 1894.—Puncture, evacuation, and drainage of sac *per vaginam*; duration, fifteen minutes. Sac supported by an assistant with flat of hand above, while anterior lip of cervix was caught and drawn down moderately, when it was held by another

assistant. Then a pair of sharp-pointed scissors was "boldly" thrust into sac, 3 cm. posterior to cervix, upward and in a curved direction, first toward third sacral vertebra and then toward superior strait. On opening scissors, immediately there gushed out black-brown fluid, followed by pale-brown clots. Then large, blunt scissors were introduced, and opened in sac, dilating it 3.5 cm. from side to side; free exit of large quantity of black fluid and clots, sac falling together as contents were discharged. Finger introduced and sac palpated bimanually with one finger on abdomen. Its lateral walls and vault found everywhere lined by brown blood clots, but separated from abdominal cavity by adhesions. Posterior surface of uterus showed uterine body enlarged about once and a half. Sac cavity washed out with glass catheter and packed loosely with iodoform gauze. No hæmorrhage save slight flow at last of bright blood.

Convalescence.—Pack removed third day. Small amount of blood, serous discharge, non-offensive. Has had some severe paroxysms of pain at times. On sixth day patient felt so well that she sat up. Had boric-acid douches every other day, followed by introduction of small pack. On tenth day patient took a few steps. On twelfth day complained of pain, more or less shooting in character, through abdomen generally. Face pale. That afternoon pack removed and irrigation commenced. As pack was withdrawn, a small amount of purulent discharge followed. When the douche was commenced it was noticed that the return flow was very slight, containing particles of necrotic material. Suddenly patient screamed out, complaining of very acute pain; became very pale, bathed in a cold sweat; hands and nails blanched; eyes glassy in appearance; pulse became weak and of small volume. Pain referred to left hypogastrium, just above umbilicus. By early evening patient was in a condition of collapse. Abdomen opened through median line. Marked and diffuse peritonitis. Cavity filled with watery, milky fluid. Lateral incisions then made in either flank; peritonæum attached to skin to promote drainage, and gauze in flanks and center above. Patient's convalescence from then on was uninterrupted, slow but steady.

Result.—Discharged on her fifty-fourth day, well. Almost no discharge from vagina. Drain tracts in abdomen healed.

CASE V.—Mrs. E. W., admitted October 1, 1894, aged thirty-three years; white; married twice; I-para, by first union, ten years of age; no miscarriages. O-para, no miscarriages, by second union.

Past History.—Had small-pox at five years; pneumonia at seven years. As an adult health has been very good.

Menstrual History.—First menstruated at twelve years of age. Regular, monthly, until marriage, when flow came on every three weeks or so.

History of Present Complaint.—Last period commenced about six weeks ago, and has continued constantly up to present time. Flow not very copious; clear at times, again thick and clotted. About same time was taken with severe pains in lower abdomen, and especially left side; was compelled to go to bed; these pains have continued right along, accompanied by severe backache.

Immediate Condition.—Has lost flesh within last week; feels weak and greatly debilitated; tongue coated; no urinary difficulty; pulse only of fair volume; temperature normal.

Diagnosis.—Extra-uterine pregnancy. Tubal rupture.

Operation, October 4, 1894.—Exploratory coeliotomy; closure of abdomen; puncture of sac *per vaginam* elected. Abdominal incision over mass, pushing forward lower abdominal wall to 6 cm. above symphysis. Fundus uteri elevated, exposed at summit of mass directly behind abdominal wall. Posterior to this, pelvis choked with inflammatory mass indistinct in its relations on account of general intestinal adhesions; these flat and vascular, bleeding on slightest separation. Pelvis choked on all sides with mass adhering to walls, rectum, and uterus. On account of universal fresh adhesions of small and large intestines, vaginal route elected. Sharp-pointed scissors plunged in through posterior fornix, followed by discharge of fluid (dark claret-colored) and clotted blood—about a quarter of a litre in amount. Incision dilated; sac washed out and packed with iodoform gauze.

Convalescence uninterrupted.

Result.—Discharged, well, on twenty-first day.

CASE VI.—Mrs. S. M., admitted September 13, 1895, aged forty-one years; white; married twenty years; VI-para; youngest child aged two years six months; labors not difficult; five miscarriages; no trouble noted.

Past Health good.

Menstrual History.—First menses at fifteenth year; regular until of late; flow free, lasting five to six days; slight bearing-down pains for first two days.

History of Present Complaint.—About three months ago patient

was seized with sudden sharp pain in lower abdomen. She became very faint, but did not lose consciousness; she was compelled to go to bed, her abdomen becoming enlarged and tender. The attack of pain came on at the time for her regular "sickness," which had simply been a "mere showing" for the two preceding months. After the paroxysm of pain she had a free bloody discharge for four weeks containing blood clots. The bleeding ceased for two weeks, then began again, lasting three weeks. Since the first paroxysm, three months ago, patient has had three similar ones, each confining her to her bed for about a week. Pain most severe on left side. Non-aching in character, save when a paroxysm comes on; then it is very acute.

Immediate Condition.—Greatly debilitated; has lost flesh; bowels constipated; face pale and anæmic; temperature, 99°; pulse, 100.

Examination.—Outlet relaxed; veins purplish; cervix softened; at once shades off into a large mass, filling both sides of pelvis, but especially prominent on right side; mass globular, tense, and apparently slightly fluctuant, resembling—to touch—uterus in pregnancy.

Diagnosis.—Extra-uterine pregnancy. Tubal, right, ruptured.

Operation.—Puncture of sac *per vaginam*, followed by profuse hæmorrhage. Subsequent cœliotomy on account of profuse hæmorrhage. Point of greatest fluctuation in posterior *cul-de-sac* punctured with sharp scissors, followed by the removal of a 3 + -months foetus, and a profuse discharge of dark bloodlike fluid. In a few moments the fluid became very bright in color and showed that a free, fresh hæmorrhage had been started up. This could not be controlled by packing, and, as it was so profuse, it was deemed expedient to go into the abdomen. Median-line incision made; free blood found in cavity, and which oozed out of incision. Patient's condition by this time plainly showed that no time could be lost, so left side was quickly tied off. Then a hysterio-salpingo-oöphorectomy was done according to Dr. Kelly's method. The ectopic sac and placenta rolled up and out. Patient's pulse had reached by this time 160, so 700 c. c. salt solution infused into radial artery.

Convalescence slightly interrupted. On fifth day, pack removed, drain having been very effective, as outer piece (third) was well saturated. On removal of gauze, no fluid oozed out. A fibrinous exudate covered the piece first introduced into sac. Five days later, without any apparent cause, temperature reached 103°; patient

seemingly doing very well. Next day temperature 104° ; no chill; little or no pain. One small drain introduced into sac. Temperature gradually coming down to normal. From then on, convalescence rapid and uninterrupted.

Result.—Discharged, twenty-ninth day, well.

CASE VII.—Mrs. E. N. W., admitted December 14, 1895, aged twenty-eight years; white married two years; I-para, aged twelve months; labor normal; remained in bed four weeks, on account of a slight tear of perinæum, which was immediately repaired; no miscarriages.

Past Health.—Never healthy; since puberty has been very nervous. When sixteen years of age had a fall which hurt her back, and has suffered some with backache ever since. Six years ago she was in bed nine weeks with nervous prostration. When eighteen had a congestive chill, said to have been due to “uterine trouble.”

Menstrual History.—First menstruated at twelve years of age. Regular, save four months following labor. Before her period of gestation she usually suffered with dull aching pain in lower abdomen, not definitely localized, beginning with flow and lasting one or two days. Some backache. Flow scanty; duration, three to four days. Since labor, has had little or no pain.

History of Present Complaint.—Last menstruated November 19th—i. e., twenty-five days ago. Period previous to this one nearly six weeks before. One day, while ascending stairs, she had a sharp pain in lower abdomen, not localized, lasting one to two hours. She then went out of doors for a walk, having no especial discomfort. On following day, while walking, had another attack of pain similar to the first one, though somewhat more severe; this lasted twenty-four hours. It was during this attack that her menstrual flow commenced, the pain ceasing as the menstrual flow became well established. There was nothing peculiar about flow, which lasted five days. She felt comparatively well for several days succeeding cessation of flow, when suddenly one day, while she was standing at the table, but making no unusual exertion, she had a sharp, cutting pain in lower abdomen, not localized; felt as if “something had given way,” this being followed by a gush of “pure blood from vagina”; nothing peculiar in the appearance of the blood. The pain continued for nearly thirty-six hours very severe; the pain at first was more in left side, then seemed to move over to right, and has continued ever since, though somewhat less in

severity. About a week ago noticed swelling in left lower abdomen about size of a small egg. This seemed to decrease a little in size after a few days. At the time of severe pain, and following it, bowels moved frequently; abdomen became quite tender; pulse never went over 106.

Immediate Condition.—Slightly anæmic; tongue coated; micturition frequent and painful; urinary analyses normal; pulse, 100; temperature, 98.6°; pain in lower abdomen; uterine hæmorrhage.

Diagnosis.—Extra-uterine pregnancy. Tubal, left, ruptured.

Operation.—Puncture of sac *per vaginam*; 750 c. c. blood coagula; removal of left tube cast; drainage. Exploratory puncture; no flow through canula, owing to its becoming clogged with a coagulum. Scissors then plunged in; then, opening, sac dilated with fingers in median line posterior to cervix, 3 cm. wide. Evacuated 750 c. c. clots like currant jelly. Whole pelvis choked, but no opening into abdomen. Uterus was pushed forward on left. Large clots, adhering to wall of sac, pulled over by fingers. Whole evacuation throughout assisted by abdominal hand; masses at times even expressed this way. Tubal cast felt like hard cylindrical mass on left side, high up; removed with fingers and delivered at vaginal incision by grasping it with Museaux forceps and making deep pressure into pelvis from above. No hæmorrhage from sac at all, but oozing from recto-vaginal sæptum; this had to be checked by catgut sutures. Sac lightly packed with gauze.

Convalescence uninterrupted. Pack removed fifth day.

Result.—Discharged twentieth day, well.

CASE VIII.—Mrs. E. I., admitted January 25, 1896, aged thirty-one year; white; married eleven years; IV-para, youngest six years; labors normal; puerperia normal; no miscarriages.

Past Health good.

Menstrual History.—Menses began at eleven years; only fairly regular; duration, three days. Has always suffered much pain with flow. Since present complaint commenced, flow has been profuse, containing numerous clots.

History of Present Complaint.—Last menstruated ten days ago; flow profuse. In September, 1895—*i. e.*, four months ago—while sewing, she had a feeling of fullness in left lower abdomen, and severe pain of rather sharp character. At this time patient had quite a profuse offensive leucorrhœal discharge. For about a year previously patient had been treated with applications and tampons for

some supposed uterine trouble. After this first attack, which lasted an hour, she felt fairly well until next day, when a similar paroxysm of pain came on, and the following day still another, even more severe than the others, and lasting several hours. Every few days pain, paroxysmal, returned for two weeks or so. Then her physician commenced making applications. After this time she began to bleed, continuing until about Christmas—ten weeks. The paroxysms of pain continued also, and during these she would pass rather large quantities of blood. She grew then slightly better; was able to go to the doctor's office. After every application she suffered intensely. About two weeks ago she had a sudden attack of very violent pain in the whole lower abdomen, and has suffered intensely up to present time. Abdomen became exceedingly tender; would have to lie with thighs well flexed on abdomen, straightening them out causing much pain.

Immediate Condition.—Fairly well nourished; mucous membranes pale; face has a troubled expression; patient lies moaning with pain referred to right ovarian region. Micturition exceedingly painful. Has of late had much nausea and vomiting. Pulse, 135, weak; temperature, 102°.

Examination.—Outlet relaxed. Uterus, left lateral, flexed on pelvic floor. Mass lies to right and does not seem to touch Douglas' pouch, but to right spherical in contour, being about 10 cm. in diameter, seeming to lie in front of broad ligament.

Diagnosis.—Extra-uterine pregnancy. Tubal rupture, suppurative, right.

Operation, January 27, 1896.—Puncture of sac *per vaginam*. Evacuation of large number of clots. Removal of well-formed foetus. Drainage. Usual vaginal incision made, posterior to cervix, upward and to the right. Then opening enlarged. After bringing away numerous blood clots, Dr. Kelly said he felt the foetus. At the same time he brought it out. Sac irrigated and lightly packed with gauze.

Convalescence slow. Temperature almost immediately dropped to normal, and pulse steadily improved. But patient suffers at times with acute pain in right ovarian region and painful defecation.

Discharged thirty-sixth day. Save a feeling of soreness through abdomen, and more or less dull constant pain, patient's condition was excellent. Vaginal examination disclosed some slight thickening along right broad ligament, but no mass.

CASE IX.—Mrs. L. P., admitted February 4, 1896, aged twenty-six years; white; married five years and a half; O-para; no miscarriages.

Past Health.—Not very good. When quite small had “congestion of lungs, liver, and brain.” Had diphtheria at sixteenth to seventeenth year of age.

Menstrual History.—Menstruated first at fourteen years of age; never regular; intervals up to three months ago varied from two to six weeks. For three months there has been irregular hæmorrhages. Pain has always been burning, bearing down in character, for first two days or so, over whole abdomen and down thighs; only recently has it become localized. Usually flow lasted seven days. Since it has become constant; pain much worse in right ovarian region.

History of Present Complaint.—In 1887 had an attack of very severe abdominal pain, but no fever, nor other signs of any inflammatory trouble. Since marriage has had profuse and painful menstruation, more marked than before. Three months ago she began to have irregular hæmorrhages. These would last variable lengths of time. The last one has continued since December 22d, flow being quite profuse, dark, and clotted. Accompanying these hæmorrhages were attacks of severe burning and bearing-down pains; occasional nausea. Did not obtain any history of a decided cessation of menses for any definite space of time.

Immediate Condition.—Fairly well nourished; lips and mucous membranes not a good color; has a profuse leucorrhœal discharge, non-offensive nor irritative. Micturition painful; bowels constipated. Abdomen tender and sensitive to gentle pressure. Pulse, 110, not strong; temperature, 100° to 101°.

Examination.—Most noticeable fact was the necessity of a differential diagnosis between an extra-uterine sac and a fibroid. This was done by careful bimanual examination, obtaining a sense of elasticity and some slight impression of fluctuation. Mass filled posterior pelvis, rather more on right side, and was intimately adherent to whole posterior uterine surface. On left side, in crack between mass and wall, left tube and ovary felt normal. On right, at uterine cornu, intimately connected, could be felt mass, with tube flat on top of it.

Diagnosis.—Extra-uterine pregnancy. Tubal, ruptured, third month (?).

Operation, February 5, 1896.—Vaginal puncture of sac; evacuation of blood coagula. Vaginal incision made by sharp-pointed scissors; then opening sac dilated $2\frac{1}{2}$ cm.; removal of a fair amount of blood clots and a female foetus; sac washed out and packed with gauze.

Convalescence.—For first three days temperature and pulse greatly influenced; temperature reached 103° on second and third nights, then gradually dropped to normal and remained so.

Result.—Discharged, twenty-first day, well; pelvis clear.

CASE X.—Mrs. M. C., admitted February 14, 1896, aged twenty-nine; white; married four years; O-para; no miscarriages.

Past Health good.

Menstrual History.—First menstruated at fifteen years of age; regular; monthly flow scant, generally bright red in color, lasting seven days; pain severe on first day.

History of Present Complaint.—Last period January 23d, rather more free than usual; no clots; lasted four days, accompanied by severe pain on the first day; no definite history obtained. Since marriage flow has been more profuse than formerly and more painful. Accompanying the periods she has had paroxysms of severe cramplike pain, followed by increase in flow, abdomen becoming sore and tender. Patient consulted physician more on account of abdominal pain at time of menstrual flow than for any definite symptom of present trouble.

Immediate Condition.—Well nourished; mucous membranes pale; no urinary trouble; defecation only slightly painful; pulse, 100; temperature, 99.3° .

Examination.—Outlet slightly relaxed; cervix pointing at outlet; fundus immediately beneath abdominal wall; posterior to uterus is a peculiar boggy mass, which is not connected with uterus; fills Douglas' cul-de-sac. This mass does not seem to be distinctly fluctuating, but has a peculiar boggy sensation. It rises three fingers' breadth above fundus uteri, is slightly movable, and gives decided sensation of an extra-uterine sac; immediately beneath the surface small, hard projections are felt.

Diagnosis.—Extra-uterine pregnancy. Tubal, ruptured; intra-ligamentary (?).

Operation, February 17, 1896.—Puncture of sac *per vaginam*; evacuation; drainage. Most prominent point on mass, posterior to cervix, selected as point for puncture; scissors thrust into sac,

evacuating a pint of thick grumous material and great number of clots. Sac distinctly encapsulated, and not communicating with abdominal cavity. Cavity thoroughly irrigated and packed.

Convalescence uninterrupted; most rapid.

Result.—Cured, discharged, fourteenth day, excepting slight induration in either fornix; pelvis clear.

CASE XI.—Mrs. C. (seen by Dr. Kelly, February 18, 1896, in consultation with Dr. C. Hummell and Dr. Coover at her home in Pennsylvania), aged thirty years; white; married; V-para; oldest child seven years, youngest, fifteen months. Labors: first, doubtful, may have been instrumental; second, multiple pregnancy; twins; both living at birth; no miscarriages.

Past Health.—Robust woman until present attack.

Menstrual History.—First menstruated at about fourteenth year; irregular first to fifth months. After birth of first child flow did not return for fifteen months; nursed child. More or less pain has accompanied flow.

History of Present Complaint.—One month ago, while menstruating, went out to dinner; flow had been on then for three weeks, about as usual in character. While sitting at the table, was seized by a violent, cramplike pain in lower abdomen, agonizing in severity; was not localized; felt very faint, but did not lose consciousness; became profoundly blanched; returned to her home, flow becoming much less—a mere “leak”—for next two weeks; got up next morning and went to church; returning home, went to bed for a day or so; on getting up, was unable to remain out of bed for more than a few hours, felt so exhausted. Ever since has had repeated attacks of pain in afternoon and early morning, not marked as the morning wore on. Pains acute; traveled over entire abdomen.

Immediate Condition.—Patient lies with eyes closed; impossible to arouse her or secure her attention in any way; constantly moaning, intermingled now and then by a sharp outcry; skin and mucous membranes blanched; face and lips of a livid hue; eyes sunken and dull; pupils contracted; marked evidence of pain on pressure over lower abdomen; for last four days has had incontinence of urine; trace of albumin present, absent heretofore; bowels usually constipated, though easy to move. For last week patient has been in a semi-comatose state; has not recognized her family; has had delusions of “cats,” etc., being in her room. Pulse has

been running from 80 to 110, very small in volume; temperature, 99° to 101°.

Examination.—Abdomen normal in size; distinct sense of resistance over whole lower abdomen, half way to umbilicus, but no vaulted prominence *per vaginam*; mucous membrane normal in color; cervix normal in size; small; no secretion from “os” posterior to cervix; pelvis filled from side to side with irregular, somewhat boggy mass; well-defined resistance to pressure; no fluctuation; no hardness, as in suppuration; uterus appears to be anterior to mass.

Diagnosis.—Extra-uterine pregnancy, tubal.

Operation, February 18, 1896.—Puncture of sac *per vaginam*; evacuation of a litre of blood clots, with large amount of fluid blood; drainage. Patient in a most precarious condition; delirious, weak, and a very small, rapid pulse. With sharp-pointed scissors vaginal incision made posterior to cervix; then dilated enough to admit four fingers; an exceedingly large number of blood clots evacuated—one half litre—not counting the fluid blood; sac then irrigated and lightly packed with gauze. Patient stood operation well, and reacted from the anæsthetic nicely; pulse about 120; no hæmorrhage.

Convalescence.—Patient’s mental condition better, but she never became entirely rational. Her pulse improved, and temperature came down to nearly normal, then went up a degree or so. She seemed to do fairly well for first four days, though on sixth day she died, apparently uræmic.

Result.—Death, sixth day.

CASE XII.—F. S., white, married four years; nullipara; no miscarriages.

Last regular menstruation four months and a half ago.

Present Condition.—Not anæmic; constipated; locomotion painful; rapid pulse; paroxysmal pains; constant hæmorrhage; tumor in left ovarian region.

Onset of Symptoms.—Sudden; bloody discharge from vagina, followed by cessation of menses and pain.

Examination.—Abdomen somewhat tense; fundus deflected to right; a hard circumscribed mass extending well up into left broad ligament.

Operation, May 9, 1896.—Emptying of sac *per vaginam*; evacuation of coagula; foetus delivered; irrigation of sac; gauze drain.

Convalescence normal.

CASE XIII.—Mrs. T. E. (Sanatorium), aged twenty-six years; white; married three years and a half; II-para, twenty-eight and ten months. First labor difficult; in house ten weeks; complicated with grip; second labor easy.

Last regular menstruation January 1, 1896, first since last period of gestation commenced; since 1st of January has had flow monthly, but of irregular date.

Present Condition.—Thin, not anæmic; pain in left side.

Onset of Symptoms.—Not sudden, but of steady development; first return of menstruation followed by acute attacks of pain, somewhat paroxysmal, unlike any accompanying menstrual pain before.

Examination.—Mass on left side, attached to the uterus, but movable, independently; indistinct sense of fluctuation, unlike either an abscess or an ovarian tumor. Vagina slightly bluish.

Operation.—Abdomen opened and sac found covered by strong bladder, sigmoid, and rectal adhesions; sac opened and evacuated *per vaginam* under guidance of a hand in the abdomen; gauze drain; recovery without febrile reaction. Returned home in twenty-three days.

VAGINAL SECTION FOR EXTRA-UTERINE PREGNANCY.*

BY FERNAND HENROTIN, M. D., CHICAGO.

Vaginal section for pelvic diseases has never been presented by reasonable men as a new discovery that was destined to supplant all others in the surgical treatment of affections heretofore cured by the suprapubic incision, but only as a method by another route of attaining the same object, and having in selected cases very great advantages.

This assertion would seem unnecessary were it not for the very vigorous, and from some quarters almost venomous, energy displayed in endeavoring to put this construction upon the claims of its advocates.

Whether for fibroids or pyosalpinx or extra-uterine pregnancy,

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or any other pelvic disorder, the most enthusiastic friend of vaginal section never claims that it is the only way of cure, or even always the best way.

They one and all agree that some varieties of the diseases in question can be reached better suprapubically, and it can be said of many of them that they have the best of the argument, for they have been accustomed to abdominal work, and have had experience in both directions, while the most bitter denounciators of vaginal work have, with almost no exception, had no personal experience with the method they condemn. To claim that because they have reasonably often removed the uterus for cancer by the vagina, they can judge of results in other affections can not be allowed, for the conditions presented in really operable cases of that disease are totally different, and the results obtained—for it is results which vaginal operators are particularly proud of—are almost diametrically opposite. The friend of vaginal section for selected cases of fibroids, pyosalpinx, and pelvic abscesses, and other benign affections, becomes more and more wedded to that method, because, with very few exceptions, he cures his patient for good and ever, while the other, who never goes the vaginal way except to take out a carcinoma, finds his surgical enthusiasm constantly oozing away, as one by one his patients silently depart. Vaginal section for carcinoma, as I predicted several years ago, will soon be a practice of the past with skillful surgeons, while modern vaginal section has come to stay; but, remember, for the cases appropriate for the method, and those only. This warning is voiced because it seems to your essayer that, like all new methods which are accepted, the desire to become proficient leads many of its devotees to forget its limitations, and indulge in pelvic gymnastic exhibitions which show more what can be done than what ought to be done.

This applies equally to the man who takes out by bits the ten-pound abdominal fibroid or the small single enucleable pus tube adherent to the anterior abdominal wall, or to the operator who says blindly that extra-uterine pregnancy is to be operated by the vagina. The great variety of ways in which the latter affection presents itself makes it evident that the highest degree of discrimination is necessary in determining the method of operating, provided operation is called for at all. The limit of this paper, which is only one part of a composite discussion of the subject of extra-uterine pregnancy, makes it imperative that only the most salient operative indications

be mentioned, sufficient, however, to show the scrutiny and study which each phase of the disease demands.

Let me first consider the diagnosed ectopic cases preceding rupture. It is not in the province of this part of the symposium to dwell upon the difficulty of the diagnosis of this variety. Suffice it to say that all unruptured extra-uterine pregnancies are small, and present themselves to the operator as a mass connected with and in close proximity to the uterus, probably never larger than an orange of moderate size. This refers to the tubal variety, as being the most common, but applies to all varieties; for it is questionable whether any larger development is ever attained in any of the varieties without the element of at least partial rupture either of the component parts of the ovum or the surrounding structures. Shall such as this be operated vaginally or abdominally? Everything depends upon the accompanying conditions present. What is more perfect and nicer work than a small, low incision above, a ligature next to the uterus, another one at the infundibulo-pelvic ligament, and a quick, clean exsection of the small, free, aseptic, non-adherent mass between, and how often such women recover and go on having children as if nothing had happened? If this woman be a primipara, with narrow, long vagina, and the conception be placed high over the top of the broad ligament, the abdominal operation is imperatively demanded and no other is proper. But let this mass be low down behind the uterus; let its peritoneal covering become adherent to the Douglas' sac; let her be a multipara, with plenty of working room; suppose there is some evidence of possible septic peritonitis present, how much easier, simpler, and safer to make a vaginal section, pull down the mass in the vagina, and make your exsection there! In nine cases out of ten the woman will hardly know she has been hurt at all.

Pass now to the ruptured cases, from the woman with an abdomen full of blood and an ovum big as a hazelnut to the one with a large, living, nine months' baby struggling beneath a load of intestines, bound down with a thousand adhesions and a great pulsating, vibrating placenta. Let us analyze the clinical features of some of the most common phases of these. First let us dwell on early ruptures. There is reason to believe that early ruptures before eight weeks occur more frequently than is supposed, or is mentioned by the leading authorities. The rupture takes place within the fold of the broad ligament, the ovum dies, the loss of blood is restrained

by the lack of space in the cavity, and the patient gradually recovers, Nature in her kindness removing all products of conception by absorption. The same may hold good in probably a rarer number when the rupture takes place in the peritoneal cavity. Or a tubal abortion without rupture can occur without very dangerous symptoms, the ovum dropping in the general cavity, and being consumed after digestion by the peritonæum.

A review of the literature of the subject, however, will demonstrate the fact that some of the most acute and most viciously dangerous cases result from very early ruptures into the general cavity with excessive hæmorrhage. Here, for example, is a blighted ovum five weeks of age, in which at least three quarts of blood were found in the abdomen at the operation. (Specimen is here shown.) If a woman is found pulseless, with a history corresponding to such a case, and with internal hæmorrhage, shall she be operated vaginally or abdominally? The indication is simply to stop the hæmorrhage in the most efficient manner within the shortest possible space of time. This can be done more certainly, probably more perfectly, and in a shorter length of time by the abdominal route than by vaginal section. To open the posterior vaginal fornix and drain, packing the lower part of the pelvis with gauze, as has been done and even recommended, is not surgical, because the bleeding point may not be controlled. To secure the point of rupture is not always easy from that direction, and to ligate or clamp on both sides of the wound is still more difficult. The manipulations necessary to do this often lead to fresh traumatism, and the hæmorrhage from the surroundings of an ectopic sac is always excessive and the tissues most friable.

The most serious mishaps of the vaginal operators have occurred when attacking the pregnant or puerperal uterus. Repeatedly, in endeavoring to perform a conservative operation on the adnexæ or a vaginal fixation for displacements, surgeons have been obliged to finish by a complete hysterectomy because of the uncontrollable hæmorrhage caused by the friable nature of the tissues of the recently pregnant organ. Besides this, the least established infection may spread with frightful rapidity in an abdomen filled with semifluid blood. Another item of importance mentioned by Martin, of Berlin, is the fact that the hæmorrhage in those cases comes from the ovarian artery, and the bleeding point of the distal end can not be reached from below.

In these acute cases, then, clean the abdomen thoroughly, put

the patient in the Trendelenburg position, open quickly, dip the hand at once through the blood to the point of the rupture, place a light clamp on each side of the traumatism, mop away sufficient blood to enable you to place the ligatures; place these by the touch, if necessary, sweep the open hand a few times around the abdomen to remove the large clots, and possibly the product of conception, exsect the tube, though this is not essential, make sure that you have controlled the hæmorrhage, and immediately close. The bleeding points can often be controlled in four or five minutes, and the whole operation completed in fifteen minutes. There is reason to believe that a fair proportion of the cases of this kind that have proved fatal after operation have been hastened to their death by attempting to clean out the cavity, and the removal of the blood, which acts as an intraperitoneal infusion, or rather transfusion, keeps the patient from dying until her vital forces rally to the rescue. In the case from which this specimen was taken, for example, the woman, who had been pulseless and cold as death for three full hours, was closed up with two quarts and a half of blood in the abdomen, and yet made the most uneventful recovery.

When the time of hæmorrhage in the free cavity is more remote, and the patient has rallied from the initial collapse—cases that have been usually styled abdominal hæmatoceles—it is probably better not to operate at all until it has been shown that Nature is unable to remove the disease by absorption. If they become septic, however, the operation of election is frequently vaginal section. To make myself plainly understood: if an abdominal hæmatocele filling Douglas' sac gives rise to symptoms of sepsis, a free opening is at once to be made behind the uterus into the abdominal cavity, the pelvis well cleaned of all *debris*, and thorough drainage established, irrigation with any force never being used.

When an extra-uterine pregnancy of from eight to twelve weeks' duration ruptures into the broad ligament, are we to do a vaginal section? Many of these cases do well without operation at all, teaching to the contrary notwithstanding, but the woman who is not certain of the careful watching of a skilled man had better take her chances with an operation. Secondary rupture of such cases into the free cavity never occurs, in my opinion, without repeated warnings in the way of sharp pains, excessive prostration, and faint spells. If it is decided to operate, the presence of septic symptoms is a factor of the utmost importance in deciding the character of the operation.

Generally speaking, a patient without symptoms, except those derived from the traumatism of the rupture, had better be operated by the abdominal method. There are exceptions to the rule. The advice of August Martin over a year ago, with an experience of over fifty vaginal operations in this class of troubles, is a most valuable one. He says if the mass is at all fixed to the sides of the pelvis, it unfolds the infundibulo-pelvic ligament, and the operation by vaginal section at once becomes a most dangerous one, because the bleeding from the retracted ovarian artery, if it occurs, can not be controlled; and I will add, because the bleeding from the tissues that are torn around the gestation sac is frequently so severe and persistent that life can not help being endangered. Who ever saw within the abdomen the fullness and fragility of the large bunches of veins grouped around a pregnant uterus that does not recognize the necessity of a large incision and good daylight to deal with a hæmorrhage in such a locality? The French surgeons have been rather strong supporters of vaginal section under all circumstances, but one can not help feeling that their statistics show entirely too large a number of accompanying hysterectomies to represent the highest standard of modern surgical art. Can anything be more satisfactory than the suprapubic method of exsection of the ruptured, usually diseased tube, followed by a careful cleansing out of the pelvis, with careful ligation of bleeding points, a careful sewing of the peritonæum over torn surfaces, with, if need be, a small capillary gauze drain into the vagina?

I have a patient operated nine months and a half ago in this manner who is eight months pregnant, having only menstruated once just before leaving the hospital. If an extra-uterine mass of this variety is loose and free in the pelvis, not reaching too far toward the iliac fossa, well down toward the floor, with a roomy vagina, it may with safety be operated by vaginal section. But such cases are really exceptional, and the method as a routine one is not to be recommended.

With the advent of sepsis, however, things are changed. We are now dealing simply with a conglomerate infectious lump which is to be removed by the channel which offers the least risk to the patient. The dangerous element in the case—namely, hæmorrhage—is to a very great extent eliminated. The lumen of vessels are occluded for a distance beyond the sac walls. In operating abdominally, we often encounter adhesions of the most distressing char-

acter quite removed from the focus of the disease. After working our way through these, we are obliged to transport infectious material through healthy parts, often contaminating as we go. The pus and septic *debris* can not usually be cleaned out perfectly, and we are perforce obliged to drain. Our ligatures become affected, and the whole nidus left after the removal of the sac frequently becomes the seat of long-continued suppuration, and it is in this form of trouble that we are so frequently worried by vicious fistulæ that never heal.

Unless a contra-indication exists, these are the proper patients to operate *per vaginam*, and if the septic process has been very virulent and long continued, and if after careful investigation of the condition of the uterus and the appendages of the opposite side our judgment indicates it, the proper operative procedure may be a vaginal hysterectomy with double castration.

There remains to be considered the ruptured cases in which the fœtus was not killed by the first injury, but continues to grow in its abnormal location whether in the broad ligament or in the free abdominal cavity.

I present for your inspection, as particularly showing the propriety of vaginal section in some of these cases, a fresh specimen of the uterus and remains of gestation sac of an extra-uterine, so-called abdominal pregnancy which I operated last Saturday.

I am particularly fortunate in being able to re-enforce my argument with such a specimen, for you know that they are rare. I am, however, very sad that the presentation of this specimen indicates the unfortunate issue of the case. In a few words—for I am trespassing upon your time—the history is this: A six months' abdominal pregnancy, with a history of a primary rupture well described. Continued growth of the embryo in Douglas' pouch. Gradual emaciation and prostration of the patient, who was a primipara. Recurring serious attacks of fainting spells, profound anæmia, excessive prostration, evidence of incipient sepsis, constant dyspnœa, making it apparent to her physician that the end was near, and he referred her to me for examination a few days before the operation. Examination revealed two large tumors, one above, reaching slightly above the umbilicus, of a fluctuating character, the other immovably packed into the pelvis, and insinuating itself between the rectum and the uterus to within one inch and a half of the fourchette. The cervix could just be reached anteriorly well above the pubis. Auscultation

over the upper mass demonstrated the extremely loud bruit of a placental souffle. Extreme tenderness and tension of the lower abdomen made a satisfactory examination difficult. At first I was inclined to believe that the pelvic mass might be a misshapen, impacted fibroid, with an intra-uterine pregnancy above. The possibility of dealing with an impacted, adherent, retroverted gravid organ was also considered. One of our members, my friend Dr. Harris, first mapped out the body of the uterus just above the pubis and to the left. Another examination made the diagnosis plain. Knowledge of the fact that the patient's condition was such that a long drain with septic absorption would certainly kill her, and the hope that I might find the gestation sac so situated and reasonably isolated that it would be possible to extract the whole, including uterus, if need be, and save the patient a dragging convalescence, which I know she could not endure, made me begin by a small abdominal incision. Possibly I may have had a passing thought of the ever-ready abdominal man, who never operates through the vagina, and who would certainly claim that she might easier have been delivered by that route. At any rate, I was quickly undeceived. No man, I firmly believed, could have delivered that patient through the abdomen, and taken her from the table alive. This is rather a strong assertion, but it is my firm and honest belief. Adhesions to everything and from everywhere. Pools of old blood and new blood wherever the finger was thrust. A small portion of the sac being uncovered by careful separation of adherent bowel, a trocar was first thrust in, and, nothing flowing, the finger followed, which, when taken away, was followed by placental tissue. Only five or six ounces of blood were lost, because much care was taken in separation of adhesion and in packing with gauze, and because, judging from the appearance of the patient, she was too near death to bleed. She was quickly brought down to the edge of the table, a straight, long incision was made in the middle line of the posterior vaginal wall, the sac was easily reached, incised, and the child extracted by pushing two fingers past the protruding arm and grasping a foot. Only a few minutes of easy plain work was necessary, although the patient died an hour and a half later, evidently being too far gone from the very start. The sad ending of this case does not lessen the importance of the lesson. If this woman had not been in the condition that precluded and prevented hæmorrhage, the abdominal incision would have given much trouble, and have been a serious hindrance

to her recovery, while vaginal section would have made the operation an ideal one. The presentation of this particular case is not intended to be made the basis of an opinion that vaginal section is to be recommended as a proper procedure in the management of this class of cases generally, or even in the majority of cases. On the contrary, the literature of the subject indicates that abdominal section in later years has given better results. It is simply the presentation of a case in which, if operation was done, vaginal section was decidedly preferable, because the case presented itself in such a manner in the pelvis, and so far removed from the placenta, that it was child's play to so deliver, and but little disturbance of the placenta would result. But even in this very case, if the pregnancy had advanced to or near time, the delivery would have been so much more difficult that the dangers would have been increased exceedingly. Again, if the pregnancy had been more advanced, there would only be a short time to wait for the death of the foetus, and subsequent stoppage of the placental circulation. In this particular case, after being in both above and below, I am prepared to state that it is my opinion that at whatever time the operation was done, the child living or dead, the way of election would have been by the vagina. As in all other varieties of extra-uterine pregnancy, the same rule holds that when sepsis is far advanced, in which case, of course, the child is dead, the vaginal method should be the choice unless there are distinct contra-indications; and in judging of these there are two elements to be carefully taken into consideration, and that is the size of the child, which, when large, can only be delivered with difficulty, if at all, through a vaginal incision, and the condition of the placenta, whether still attached or detached, and with or without vessel connection.

The recital of a case has made this paper much longer than proper in a symposium, but it is a subject of interest, and I present my excuses for taking your time. In December, 1890, Dr. Fenger, here present to-night, read a much more classical paper upon this very subject before this Society, which, however, only treated of cases at or near term. Moreover, let me draw your attention to the fact that since 1890 vaginal section has developed to a much higher plane as a distinct method of operating, and many men have become much more skillful in that variety of work, while the technique has likewise improved. This paper is not exhaustive, but is only intended to sustain the position of its writer, and outline the particular variety of cases

that are amenable to vaginal section. If you carefully consider it, you will recognize that, generally speaking, the position is taken that vaginal section has a distinct field in extra-uterine pregnancy; but then, after all, that field only covers groups of cases that are exceptional, and that laparotomy is considered the proper road by which to attack the large majority of cases.

THE VAGINAL VS. THE ABDOMINAL METHOD OF DEALING WITH INFLAMMATORY DISEASES OF THE PELVIS.*

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The aim of the surgeon in the application of his methods is to obtain the maximum benefit with the minimum sacrifice of structures, the least amount of risk to life, and the saving of time and pain to his patient. These various results are best obtained by one surgeon by the following of a technique to him easy and successful, while another is equally successful in obtaining the same results by a procedure different wholly or in part. With many surgeons the choice of operative procedure determines his success, while others possess that rare gift of making a success of any and all methods, and are to be congratulated and admired by those of less dexterity. Some never make a success of any method, and are constantly scanning the pages of foreign literature for something new to try. In this way much harm is wrought to surgery, and many lives lost. I would not be misunderstood on this point, as I do not in the least desire to place a depreciative stamp on any good and safe surgery, be it foreign or a home procedure; but I do desire to enter a protest in the matter of hastily accepting the revival of a class of surgical procedures discarded some time ago in this country, and lately revived in part in Europe. I refer to the draining and partial removal of the diseased appendages, and the total removal of the uterus in cases of double tubal disease.

* Read before the Missouri State Medical Society at Sedalia, May 19, 1896.

That the reports from a few skilled operators are so favorable (in as far as concerns immediate recoveries) that they are seductive no one will doubt, and a temptation to accept the theories and follow in the footsteps of the advocates of these methods, on first reviewing, is often too strong to be resisted by many.

It is perfect surgery, or as nearly perfect surgery as is possible, that all surgeons desire, but, before accepting precepts involving human life or comfort, all evidence should be brought to bear on the topic, duly analyzed and weighed for its proper worth.

It is from this standpoint that the writer desires to discuss the subject of vaginal hysterio-salpingo-oöphorectomy, as described and practiced by many of the French and a few of our American gynecologists. Some men in other professions achieve renown by the mastership of their art; for instance, Paderewski, whose dexterous fingers and delicate touch on the ivory keys of his piano has startled and charmed the people of two hemispheres. However, there is but one Paderewski.

The limit and the character of the pathology should form an indication as to the character and the extent of the surgical procedure. A succulent and pus-infiltrated uterus, with possibly numerous pus foci, surrounded with pus-laden tubes and ovaries, should be removed, the choice of operative procedure being the one that, in the opinion of the surgeon, offers the greatest chances of immediate recovery from the operation, a permanent relief of the constitutional (septic) manifestations, the local symptoms resulting from the presence of these diseased structures, and the repairing of the damage to surrounding organs wrought by their presence.

A cancerous uterus should always be removed, if seen before the disease has extended to surrounding organs. The tubes and ovaries, as a rule, should be taken along with it, thus getting as far beyond the diseased area as possible.

A uterus known to be tuberculous should be removed along with the appendages, as by so doing a systemic infection may be averted. The cancerous and tuberculous uterus, as a rule, can be removed through the vagina, for, if the disease has advanced so far as to involve the viscera, the case is an inoperable one, and should be left alone so far as surgery is concerned. The operation that promises nothing more than a specimen and a fee is not within the domain of legitimate surgery.

In an old recurring puriform disease of the uterine annexa, where

the adhesions are well organized and where the intestinal bladder and omental attachments are firm, the vaginal method would be fraught with more danger than the abdominal. These cases have established in part a peritonitic immunity by a prolonged and gradual process of auto-sero-therapy; consequently, the abdominal method is not so liable to inaugurate an acute dangerous peritonitis or septicæmia, as is often the case in the acute or primary attacks if operated on.

Some of the advocates of the vaginal method only a short time ago maintained that it was an admission of incomplete operation to use drainage, yet they advance the good drainage by the vagina as an argument in favor of the vaginal route.

It has long been an established and demonstrable fact that, in the great majority of instances, the uterus is capable of taking care of itself, and that it does not give rise to any trouble by its presence after the diseased appendages have been removed. I do not understand why an organ with a good and free natural drainage should not recover, and yet (as is claimed) an ovarian abscess or parts of diseased tubes, with walls as thick and as shaggy as a cocoanut, get well with only an opening into the vagina.

To remove the uterus and a part only (as is admitted in many cases) of a diseased tube and ovary, and leave a filthy sequestrum in the pelvis, and expect Nature to cure the case, is not good surgery, and a larger percentage will be found to have imperfect recoveries, fistulæ, and continuance of the pain than if the work had been completed. This it is possible to do, and it is done by good surgery when operating suprapubically.

The Trendelenburg position and vision surgery took possession of the minds and technique of many operators a few years ago, and numerous articles were written lauding the advantages of that position while doing abdominal and pelvic surgery. The pathology is rarely confined to the pelvis, but its effect and extension are often found at the umbilical level. Some of these operators (and many of them are skilled and successful in every surgical sense) are now practicing and teaching the dark-route (vaginal) method, where strong instruments, the sense of touch, much muscle, and adhesive or staying qualities are factors in the make-up of the surgeon and his surgical outfit, and essential to getting the specimen or part of it.

The vaginal-route operation is not an easy one, neither is it as quickly performed as the suprapubic.

Pus is not always found in the tubes and ovaries where their removal is demanded. Firm and well-organized adhesions are often found binding the omentum, bladder, uterus, tubes, and ovaries firmly together. These adhesions were at one time Nature's breast-works thrown out for the protection of surrounding organs, but, like Nature's work in many other localities, she here fails to undo her imperfect work. The vascularity or limit of these adhesions is only determined at the time of the operation. An omental adhesion to the fundus may be torn across in the beginning of an operation, and scarcely a drop of blood escape, while in another the hæmorrhage may quickly prove fatal. A bleeding of this character is best controlled by a good ligature, such as it is only possible to apply in all cases correctly by the suprapubic method.

A prolapsed uterus surrounded by inflammatory diseased tubes and ovaries can best be treated by a vaginal hysterectomy, removing appendages at the same time. In this condition the uterus is not removed because of a fear that its infected state would preclude the possibility of a relief of the symptoms, but to relieve the symptoms induced by the procidentia. Some of these cases are cured by the removal of the appendages, a ventral fixation of the uterus, and a repair of the vaginal tears.

Occasionally a gynæcologist is called to see a case in the first attack, and finds the general state of the patient such that to attempt the major or curative operation would be fraught with a danger of such magnitude that it would be bad surgery to do otherwise than simply to make an incision into the mass in the vaginal vault and drain, with the idea of completing the operation at some future time. All are agreed upon the course to pursue in such a case.

If the case should prove to be a true pelvic abscess, one of those extremely rare cases in which the pus is extraperitoneal—or, in other words, between the layers of the broad ligament—this seemingly minor procedure will be found, in the majority of instances, all that is necessary to effect a cure. These cases are rarely met with in practice, and not so often in the literature of to-day as in that of former years. To remove the uterus in such a case would be a sacrifice unwarrantable, as there is nothing to be removed but the pus.

A failure to discriminate between this rare disease and the more common tubal disease until in the midst of a vaginal hysterectomy is extremely unfortunate, as it is then too late to retrace, while, if the

incision was made suprapubically, the error would not be so expensive, and the correct course to pursue would be pointed out.

It may be claimed that through a posterior vaginal opening the appendages can be examined, and the same deduction arrived at as though the abdomen was opened; but the fact must not be lost sight of that in these cases (true pelvic abscess) the pelvic peritonæum is clean and uninfected, and that a posterior opening endangers the safety of this structure. A safe rule to apply here would be to cut into the bulging part where the pus is nearest to the mucous membrane.

In the midst of a prolonged and difficult operation for the removal of the uterus and pus-bearing tubes an alarming hæmorrhage sets in, the exact source of which can not be found. The patient's abdomen is opened in the quickest possible time, with an imperfect asepsis, and the bleeding controlled; but three days later the patient dies from a peritonitis.

The operator can not take the necessary time and precaution in preparing his instruments, his patient, and himself to do a clean abdominal operation when the question of most importance is to quickly save his patient from hæmorrhage. The above remarks applicable to bleeding are of equal force in most instances where an intestine has been opened through the vagina. Very few operators, I am sure, would feel competent or able to put in a row of Lembert sutures, and make a closure of an intestinal rent that could be trusted to keep in liquids and gases.

The mesentery, in cases where many adhesions are present, will be found thickened and shortened at the time of operation to such an extent that it would be impossible to pull a coil of bowel down into the vaginal opening, already filled with a dozen, more or less, pressure forceps.

In comparing the relative ease with which the manipulation can be carried on through an abdominal incision and an opening in the vaginal vault, it must be remembered that the bony resistance met with by the impinging of the hand against the pubes is unyielding, differing very much from the pliant muscle of the abdomen under anæsthesia.

A small percentage of post-operative herniæ is found following in a large series of abdominal incisions, but these are discovered by the patient and not by the surgeon, and are not of such frequent occurrence as to be used as an argument against the suprapubic

incision. Time and close investigation of the vaginal cases will reveal an equal or a larger number of vaginal bowel protrusions.

The length of the mesentery precludes, in most instances, the possibility of the intestine reaching the outer entrance to the vagina, and many vaginal intestinal herniæ will not be discovered by the surgeon owing to the return of the bowel when the patient is in the usual position for vaginal examinations. In examining for a vaginal hernia, the examination should be made with the patient standing.

It is not sound argument to advance that the woman with a vaginal operation can get up and be about in ten days, as it is not probable that the vault has healed so much more quickly than a smaller, clean, incised wound in the abdominal walls.

One writer says: "The abdominal scar is a source of great worryment, especially to the Frenchwomen, who are great admirers of a fair complexion and unblemished skin." A suprapubic scar and a low-necked dress may be incompatible in Paris. Even some who held other views are made converts to this idea after visiting the French metropolis.

Very few cases in abdominal surgery die from shock if the work of the operator is decisive and quick. "Chronic surgery" and prolonged anæsthesia kill many patients, regardless of the character or location of the pathology or route of surgical approach. Septic patients endure anæsthetics and slow surgery badly.

One writer, and, by the way, a good operator, in praising the vaginal system, says: "Landau has done good work, but in a great many cases he *opens the abdomen to finish.*" (Italics mine.) Landau is regarded as an expert surgeon, yet in a large number of cases he is compelled, in the midst of an already prolonged vaginal operation, to open the abdomen to finish his work, thus making two incisions instead of one, opening the pelvic and abdominal cavities. This work can always be completed by the suprapubic route.

Not a week ago, in breaking up universal adhesions, the appendix (which was diseased) pulled off at its cæcal end, leaving a ragged opening into the cæcum. The discovery and closure of the bowel injury saved my patient. Others have had similar experiences.

THE FUNCTION AND PATHOLOGY OF THE
RETICULAR TISSUE.*

BY A. W. JOHNSTONE, M. D., CINCINNATI, OHIO.

The function of the reticular tissue is to furnish protoplasm, which supplies the waste of the daily wear and tear of the body. This is the conclusion I have reached after twenty years of study.

This train of thought was first started in your midst. In the winter of 1876, a pupil on the benches of the new University building, I was one day listening to Prof. Darby lecture on skin grafting. The next lecture was by Prof. Arnold, on the function of the white blood cells. At that time we had just found that they wandered, as Cohnheim's ideas were just beginning to be adopted by our schools. The phagocytic action was little understood, and, though the lecture was clear as far as it went, it did not give us the ultimate purposes for which this wandering takes place. In thinking over the possible purposes for which these migrations were made, the idea came to me, Is it possible that they may take the place of the fixed tissue cells, and that in this way the repair of the body is made? During the same course of lectures, Prof. Arnold gave us a great many illustrations of the immense amount of waste that is constantly taking place in what were once protoplasmic bodies, the wholesale destruction of epithelium in the secretion of milk, the rapid deterioration of epithelial cells caused by the secretion of mucus and sebaceous fluids, and, in fact, the rapid wearing away of epithelial structures wherever any functional activity takes place. But nowhere could he give us what seemed to me an adequate answer to, "Whence comes the supply to repair this waste?" This, gentlemen, has been the central idea of all my studies.

The first experiment I made on the subject was going over again the old experiments of Onimus, who claimed to prove that the leucocytes originated *de novo* from a blastema, by putting the serum of freshly drawn blisters in gold-beater skin bags in the cellular tissue of animals, and finding after twenty-four hours large numbers of

* Read, by invitation, before the New York Obstetrical Society, May 5, 1896.

leucocytes swimming in the serum. These, I believed, got there by migration, and proved it by varying his experiments. First, I found that the thickness of the bag measured the time in which the leucocytes would be found. Where there was only one layer of gold-beater skin, the leucocytes would appear in twenty-four hours, as he had said. Where there were two layers, it took forty-eight hours; where there were three layers, still longer. But when I used a varnished gold-beater skin, through which no migration could take place, no matter how long the bag was left in position, the leucocytes did not appear. I also found it made no difference what kind of fluid, so that it was not irritating, was placed inside this bag—that the leucocytes would come just the same. A mixture of water and the white of egg, pure water, simple saline solutions, etc., were all tried with the same result. So I was convinced that he had overlooked the migratory power of the white blood cells, and consequently his reasoning had to fall to the ground.

I next turned to the study of the reticular tissue, to find if possible how these cells originated, and in it I discovered the gemmation of the granule from the thread, which formed the future nucleus of the cell. It is true there is a certain amount of cellular division after the cell had grown, but it does not amount to a great deal in the supply of the tremendous waste which is necessarily taking place among the leucocytes all the time. Immense numbers of them are used up in every conceivable way, and the latest investigations of the digestion of fats shows that very large numbers of leucocytes—far beyond what we have been taught heretofore—necessarily must be killed in the process of the absorption of fat. The one thing that made me a rebel to karyokinesis as the sole method of production was the fact I learned as a boy, while studying vegetable life, that the vitality in the bulbous variety of plants is always one of diminishing quantity. Take for illustration the common potato, the simplest form of cell division. All of you who are country boys know how this grows, but you also know, unless you go back to the seed and get a new variety, that in ten or twelve years the potato will have completely run out. This law holds good for all tubers. Cell division, as we understand it, does very well for a short time, but if that is the only source from which the vital forces are drawn, sooner or later it must run out and the line become extinct. I have always believed it to be an exceptional power, which Nature uses only upon exceptional occasions, when something must be done

rapidly, but for a short time, and to me cell division, as we understand it, always means a weakened tissue. With this belief deeply ingrained into my thoughts, it is no wonder I have pushed on, hunting for some direct connection with the nervous system for the life-giving power of our protoplasm.

The first publication of the fact of the budding of the granule was made in 1878, and you will find it in Dr. Heitzman's *Microscopical Morphology*, in whose laboratory I made the discovery, and to whose kindness and support I owe much for the pleasure I have had in my microscopical studies. From 1878 to 1886 I was still so imbued with the idea of cell division that I hunted for it in all its forms in all healthy adult tissues, but could never find it in a degree anything like proportionate to the amount of waste of the structure itself. During this time I turned to the waste of epithelium, and tried to find its supply. It is true in the rete Malpighii of the skin you do find cell division going on, but nothing like in the proportion of the desquamation which we have from the corneous layer. How much this desquamation is we surgeons now have practical knowledge of. Whenever you have been traveling, cut off from your bath tub for a few days, your first soap bath gives you an idea of the millions of these cells that have been got rid of. Did any of you ever take the trouble to put the settlings of the bath tub under the microscope? If by any accident you have failed to take your bath regularly every day, the amount of cell destruction found is something simply terrible.

Knowing all this, I studied not only the skin but the nails, the frog of the horse's foot, and many other epithelial structures of cornigerous nature, but I found them so extremely hard to handle and so difficult to deal with that nothing very satisfactory could be made out; though in the frog of a colt's foot, about 1880, I did see this same budding. One winter I spent in the Bahama Islands, and in the fish's scale and the turtle's shell that I there looked into I found something approximating the same thing, but my idea of cell division was so thoroughly grounded I still did not understand what this budding of the granule meant.

The methods I used in handling these structures were the same old ones we were all taught in the laboratories, and that I am sorry to say are still in vogue with a great many men—that is, of first hardening the tissues, putting them through very tedious processes, which converts them almost into leather before you attempt to cut

them. In 1886, though, I found a very convenient little freezing microtome in Edinburgh, and my experience with that taught me all this hardening is not necessary, and that it rather hampers the clearness of definition than to give any advantage to it. In the preparation of my specimens, from which the menstrual organ paper was worked out for the British Gynæcological Society in 1886, I found the sooner the specimen was got on the freezing stage after it was removed from the body of the animal the better the results would be. All that was necessary after slicing it as thin as possible was to let it lie in water for a few hours until the air bubbles caused by the freezing were soaked out, then either to mount it in glycerin and seal it up with asphalt, or, if you want a beautiful specimen, it might be stained with carmine. But, to the practiced eye, this staining is not necessary. This is the method I have uniformly used, and the one that gives most satisfactory results. The objection of many to it is that your specimens will not keep, which is a mistake. I have in my possession now specimens that were made in this way ten years ago, and, where the asphalt has not cracked and allowed the glycerin to evaporate, they are just as clear and perfect as they were the day they were cut.

While we are on the subject of preparation of specimens, I want to enter a protest against the tedious processes that I see many of my *confreres* using, and above all, the habit of mounting in Canada balsam. The high refracting power of Canada balsam blurs the specimen, and in very high powers, from fifteen hundred up, its clearness of definition is nothing like equal to the glycerin specimen.

But the one thing that has been the greatest assistance to me is this little freezing microtome. It is very simple, no trouble about being kept clean, and, with the specimen frozen, it cuts the hard quill of a feather and the soft gelatinous pulp in a beautiful even plane that I have seen the rocking microtome simply make hash of. The rolling of the specimen, which so many complain of, with a little care is got rid of in the water that soaks out the air bubbles. So that with this little machine I can make specimens three or four times larger than any cover glass will accommodate, with every imaginable density of structure lying within it.

I will not take up your time in a repetition of the conclusions given in the menstrual organ paper of 1886. They were so beautifully presented to this body by Dr. Pryor last fall that it would be a waste of time for me to here discuss them. At the time that paper

was written I thought it simply a digression from the subject I had been so long pursuing, and the only light it gave me was that the single layer of columnar epithelium lining the cavity of the uterus was produced directly from the subjacent protoplasm, but that was the only step given me in the right direction. My previous studies of lymphoid structures were so thorough that I could not be deceived as to the nature of the human endometrium. But even then I thought it somewhat of an exception, and did not dream that it is the type of all tissue regeneration.

The lymphoid nature of the endometrium thoroughly established gave me the key to the whole situation, and all that was necessary to find the zoölogical nature of the endometrium was to follow up this clew. The results you know. While it is true I did feel I had done a good piece of work in properly classifying the endometrium, as I have stated, I thought it a mere digression from my main quest. But this deviation had to be pursued further. The winter of 1886 and 1887 I devoted to the comparative study of the endometrium in the cycle of the rut. This paper I sent to the British Gynæcological Society, and you will find it on page 379 of the *British Gynæcological Journal* for 1887. The reasoning there going to show the necessity for the lymphoid nature of the endometrium is entirely too long here to consider. All that is necessary is to repeat that the lymphoid state, as in the human being, is an absolute necessity to an individual in whom the rut is omnipresent. But there is no way by which the human placenta could be manufactured in such a short time unless we had the protoplasm just ready to go into the myeloid state. From this I also learned that the myeloid state is reached by other routes, which are only an approximation to the transitions described for the human endometrium, and that in the dog and many other lower animals there is a condition very closely resembling that found in the monkey by Mr. Heape. In them the myeloid state is also reached, but at much longer intervals, and when nature is thoroughly prepared for it. I can not stop now to discuss the varying condition of these endometria, for nothing short of a course of lectures could possibly present these varying conditions in an intelligible shape. The only reason that I have mentioned this paper is to show you that its preparation was the turning point in my ideas as to the real production of epithelium. Not that I saw any very great changes in the epithelium of the uterus as the rut approaches, but I found enough to convince me that the protoplasm of the epi-

thelium acted very much like the protoplasm of the connective tissue; and that, after all, protoplasm, no matter whether it is an epithelial cell or a connective-tissue cell, myeloid state, or what not, is protoplasm at last, and is acted upon in very much the same way by any very great nerve stimulation. After studying the rut, I naturally turned to thinking about the molt in birds, wondering if it was an analogous process. It seemed to me to be rather the trough of the wave, if the rut represented the crest, and thought I might find something in studying the changing histological conditions of the formation of feathers. So, along through 1888 and 1889, I put in my spare time in studying the varying conditions of the feather papilla, and there found that the feather papilla is a very closely analogous substance to the endometrium; and that, like the endometrium in the lower animals—that is, when the feather is full grown—it is nothing but myxomatous tissue. But when the molt comes on and the new feather about to be grown; the whole mucous tissue is rapidly converted into a very large protoplasmic mass, which an expert can scarcely differentiate from ordinary adenoid structures.

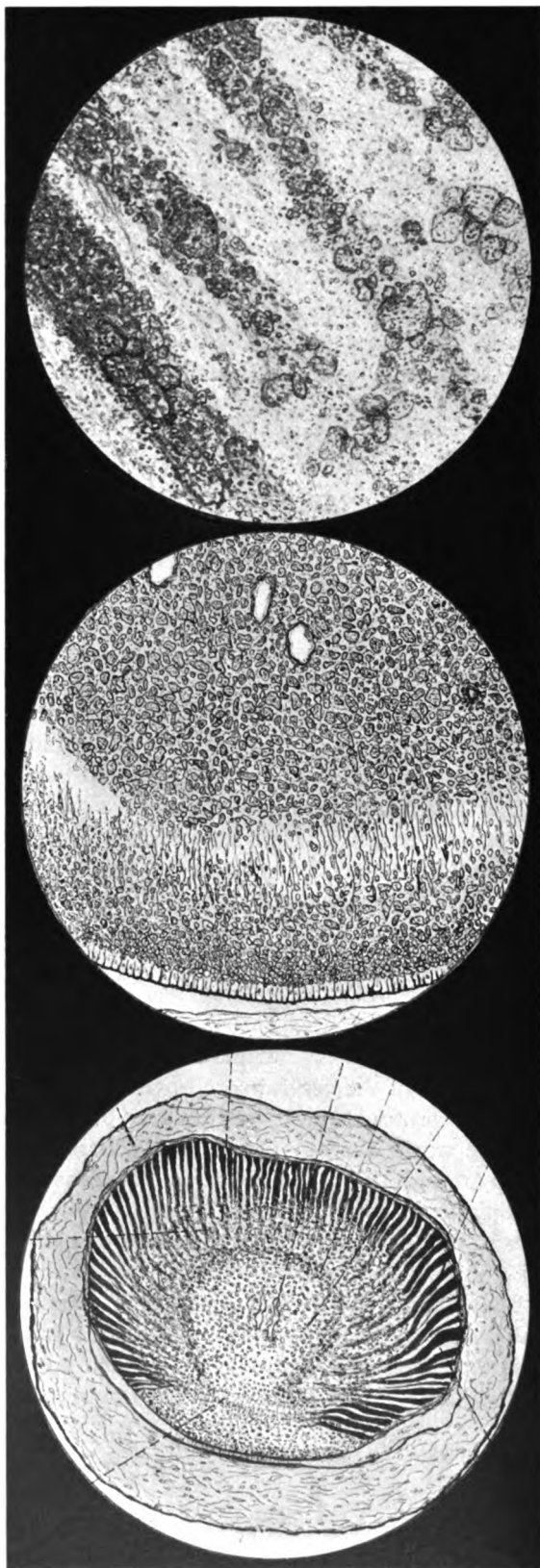
In the spring of 1889 I was asked to read a paper before the obstetrical branch of the British Medical Association, and I took as my theme the sexual ornaments, and there showed some beautiful drawings, made by my first teacher, Dr. Heitzman, with the greatest of care, portraying fully these rapid and beautiful changes which take place in the quiet, silent myxomatous tissue as it rapidly springs into the new protoplasmic life, builds up the columns of the feather, and in a very short time constructs such a large epithelial formation. From the study of the feather papilla, I was sure that the two were alike, and took the ground that the manufacture of the sexual ornaments was only an analogous process to the manufacture of the protoplasm necessary to make the afterbirth. This paper was read at the Leeds meeting of the British Medical Association, in the summer of 1889. For some reason, I never knew what, it was not published, and to my great sorrow the drawings were lost. It is true at that time my views about the reproduction of epithelium were somewhat crude, though it was a step in the right direction, and put me on the track of the discoveries that I here bring you to-night. After my return from England in 1889, my business was so engrossing that all original work had to be dropped, although I felt somewhat like a renegade in not pursuing the subject further, though I determined it was only a postponement. So

last year I began the work again, and the paper before the Chicago Gynæcological Society last April was the result. In that I took the broad, firm ground that Remak's law has stood as a stone wall square across all true progress, and that it must give way if we ever expect to advance nearer to the sources of life than we have been for the last generation. It takes no cognizance of the formation of the mesoblast. We should study the individual in his present condition, it is true, with a recollection of what he has come from, but that in each varying state we must follow the simple common-sense law that Nature always changes the individual to suit his surroundings, and that we can not expect to find the conditions of the adult the same as those of the foetus. It is simply an imposition on common sense to expect that the most destructible of all tissue—protoplasm—should depend upon itself for reproduction. To me what the three great membranes mean are the three great functions of the body. The epiblast undoubtedly makes the nervous system, and all that it contains; the hypoblast makes the digestive system, with all connected with it; and the mesoblast makes the locomotive and procreative apparatus, and all the weapons of defense; but that all three of these membranes undoubtedly make connective tissue and epithelium wherever necessary, or at least tissues which are very closely akin to both. Even in the foetus I believe that our teachers have gone too far in laying down any such dogmatic rule as Remak's law. It did very well to work by for students, to nail down hard and fast the difference between connective tissue and epithelium, but now that we know positively that epithelium does spring directly from connective tissue, the whole structure has to fall to the ground. In that Chicago paper those of you who recollect it will remember that I gave drawings of many forms of epithelial tissue springing directly from connective tissue. There were secreting glands, feather papilla, dermal structures, etc., all of them showing the direct transition of protoplasm forming from connective-tissue threads into epithelium. In that paper I also took the ground that the sustentacular tissue directly underneath the epithelium, not only of all secreting glands, but of all dermal structures, is closely allied to what has been called the reticular tissue, and that the reason it has not been recognized long ago is the fact that it is packed so densely for the purpose of forcing the protoplasm to grow to the outside that its fibrous nature is overlooked by low powers; but, under proper investigation, it undoubtedly is

a structure very closely allied to the tissue that makes the framework of the lymphatic glands. So, then, one of the points that I wish to announce to-night firmly and unmistakably is that all those structures known as reticular tissue, the sustentacular tissue of all secreting glands, and the *stratum lucidum* of all dermal and mucoid structures, are closely allied, and that their function is, as I have stated in my opening sentence, to manufacture the protoplasm which supplies the waste incident to life.

It has been the custom of men when they made discoveries to invent new words to express their meaning. I dislike the habit, but, as some foreigners may not understand the meaning of the English language, it may be best to give it in the Greek. The Greek term would be anagenetic tissues, but, for fear some one may happen to find this paper who does not understand the English word thoroughly, I will give it all in Greek. It would be: Somanagenetic. You all understand what this means—*somna*, body; *ana* has the same force as the Latin "*re*," as in regenerate; and "*genomi*," which means to produce. Literally, in English, it means begetting the body again. Our English word regeneration covers the full force of the whole expression. So, then, to all of you I would like to introduce these varying and heretofore misunderstood structures as all belonging to the same class, which, named from its function, are the anagenetic tissues. Use this term or not, as you like, if you only remember what my beliefs about them are.

Some of my critics have said that I have not brought evidence enough to prove the ground I have taken about the budding of the granule from the thread, and what I here bring you is to me at least convincing. It consists, first, of three drawings on one card, containing cross sections of the growing feather of a turkey, showing first under the low power that the central core of the feather papilla is nothing but ordinary protoplasmic tissue, fed by blood vessels, and looking for all the world like one of the Malpighian bodies of the spleen. Directly around it you will see a zone of transition tissue from this protoplasm into epithelium. Then, still further out, you see the darker columns which go to build up the shaft of the feather. The dark columns are the outside of the feather, as it lies against the bird's body, and the deposit of pigment, of course, gives the color of the bird. The light part, shown on the left-hand side of the 250 power, is the under side of the feather, which you all remember shows up white in most birds. This low-power sketch is



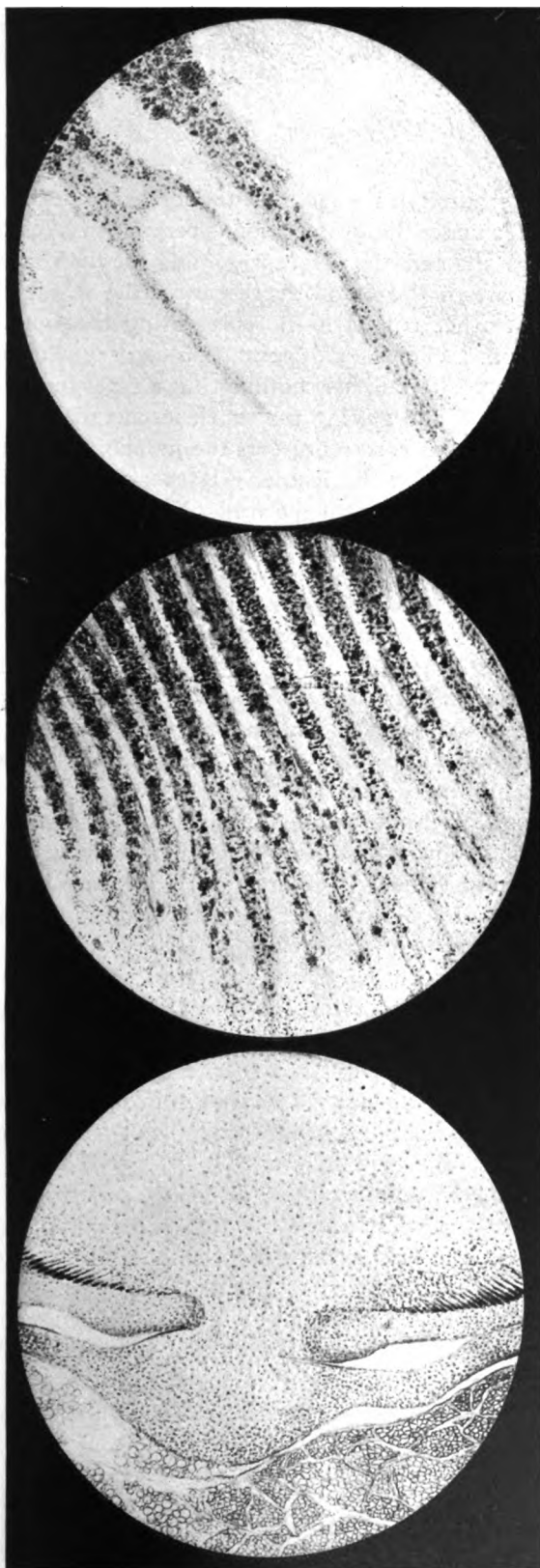
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1. Cross-section of turkey-feather papilla, showing topography. 250 diameters.
2. Cross-section. Junction of feather papilla with inner side of growing feather. 800 diameters.
3. Cross-section. Junction of feather papilla and outer side of feather. 3000 diameters.

NOTE.—The following illustrations are reduced .267 in size from the author's drawings.—EDITOR.



- 4 Longitudinal section of feather. Six weeks' chicken. Showing local hypertrophy of the stratum lucidum as foundation of papilla. 250 diameters.
5. Upper part of papilla, showing transition of bundles of threads into epithelial columns. 800 diameters.
6. Same as No. 5. 3,000 diameters.

4

5

6

a beautiful demonstration of the fact that the feather is nothing but a modified scale, for under this power it looks very much like a finger cut across through the nail, the nail representing the dark columns, with the pulpy part of the finger representing the inside of the feather, and the feather papilla itself representing the bone. By looking at this from a clinical standpoint, you can see what an in-growing toe nail is. After all, it is nothing but a scale reverting to the type of the feather and getting too much in-curved.

The 800 power on this card represents the junction of the feather papilla and the inside of the feather. It speaks for itself, and shows the gradual transition from the protoplasm of the papilla to the young epithelial cells, which go to make the pithy soft inside of the feather.

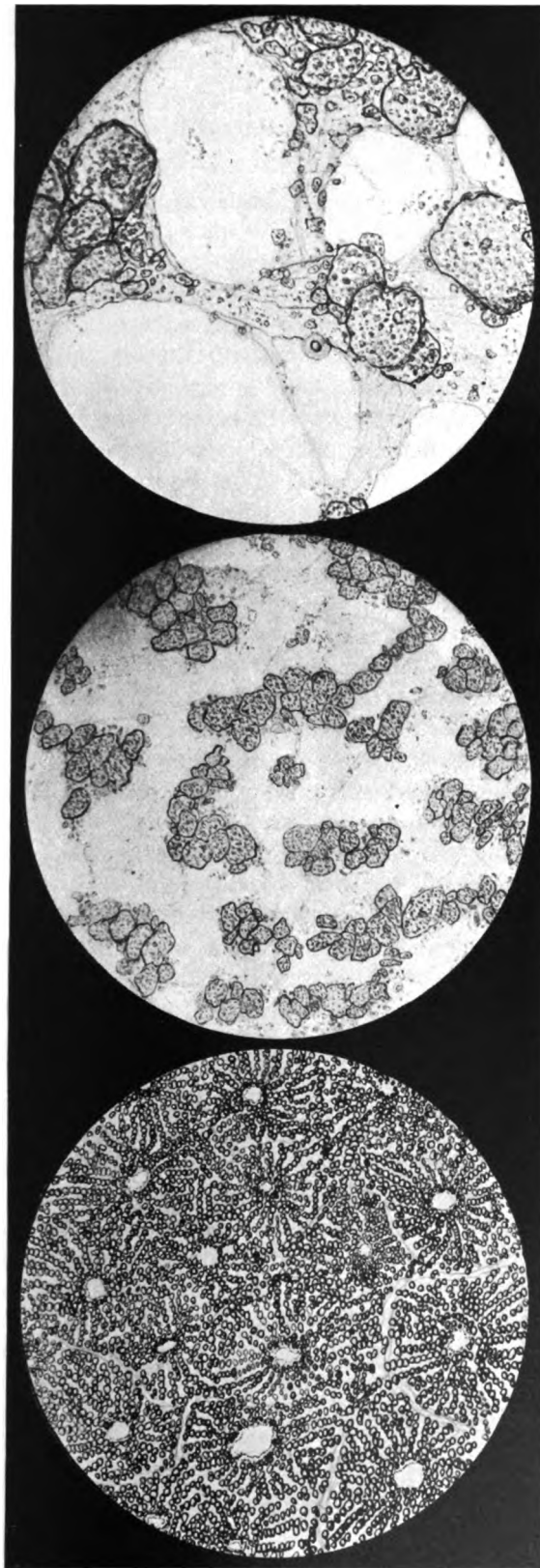
The 3,000 power shows the opposite side of the same section, where the columns join on to the papilla. This section is rather thick, but still shows something of the fibrous nature of the papilla, and that the columns are first laid down in bundles of fibers, which are gradually converted into the columns.

Card No. 2 contains drawings of longitudinal sections of a six-weeks'-old chicken. In studying this remember that these are the first feathers grown after the chick comes out of the shell. It is hatched with a soft, downy covering of feathers, which are shed while these are being grown. The creature is growing very rapidly at six weeks, and the growth of its feathers must be proportionate.

The 250 power is a beautiful demonstration of what I have said, that "the feather papilla is nothing but a local hypertrophy of the *stratum lucidum*." The root sheaths look like the bottom of a flask with a hole in the middle. Directly underneath this opening is a disklike enlargement of the *stratum lucidum*. From this thickening you see the new tissue pouring up through this opening to the inside of the cavity of the quill.

The second drawing is under the 800 power, and shows these bundles of fibers at the point where they are rapidly changing to an epithelial nature. They speak for themselves, and need no description.

The 3,000 power shows one of these bundles at the same place, and gives you a better idea of how the transition takes place. These black dots are pigment. The feather happened to be an extremely black one, and its granules of protoplasm show pigment from the



8. Calf's liver. 250 diameters.
 9. Same as No. 8. 800 diameters.
 10. Same as Nos. 8 and 9, showing gradations of development of granules into full grown liver cells. 3,000 diameters.

8

9

10

very start. The feathers of grown birds, as they change their plumage, form more perfect cells before the deposit of all this pigment. But in them the process of growth is slower than in the fledgling, and the consequence is that the papilla shows far many more round cells than you see here displayed. In fact, it is so much the case in some specimens that the fibrous nature of the papilla is more or less obscured by the number of round cells. So I have taken advantage of this fact to have a number of places showing the condition of the papilla in its middle and lower portions drawn on these separate cards. You see they are only bundles of minute fibers, with very few nuclei, but very rich in small granules, many of which show pigment.

The next chart, though, is to me the most convincing of all. It is a study of the young calf's liver. The 250 power shows the picture with which you are familiar, simply the lobules with the spokelike arrangement of the columns of hepatic cells radiating from the intralobular vein, with the spaces for the interlobular.

The 800 power shows that the interstices between the "spokes" contain a very fine network of not exactly homogeneous tissue, for a few granules appear under this power. But to a greater or less extent these fibers seem homogeneous, and the little specks, which represent the young corpuscles, might readily be overlooked if this were the only method for their investigation.

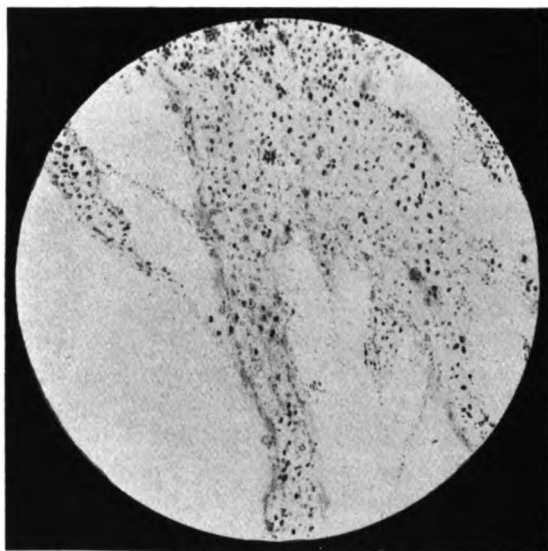
The 3,000 power, though, shows exactly the same thing for these fibers that I described as going on in the ultimate fibers of the endometrium. First, the little granule within the thread begins to swell. Slowly it enlarges until it protrudes from the side of the thread, and many times in its investigation you will see it has exactly the same staining reaction as the nucleus of the large cell beside it. By and by, however, you will see a little halo begin to show around some of these granules, like the penumbra shown in our old astronomies when we were studying the eclipse. This gets wider and wider, until little granules begin to show within this shadow. So then, as I have stated so often, as is the case in adenoid tissues everywhere, in the most typical of all epithelial structures, the liver, we find identically the same thing going on in the sustentacular tissue within the lobule.

One other proof this high power shows of the relation between what has heretofore been called connective tissue and epithelium is the direct connection, shown in these drawings, between the

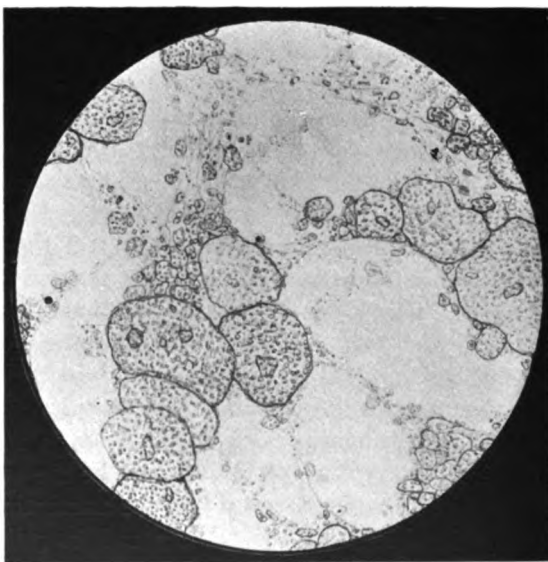
large protoplasmic cells and the threads themselves. The threads not only serve the purpose of holding the cell in place, but they have a direct organic connection with the protoplasm of the cell, through which it must certainly get its nervous control. One form of the argument on which Mr. Heape based his belief that the epithelium lining the endometrium of the monkey's uterus is produced directly from the subjacent endometrium was the continuance of the protoplasm of both structures with each other; and this is a very important point, and one, while I have used it mentally, I have not said much about.

Fearing that you might think these drawings schematic or more or less diagrammatic, I have had many other spots of the same specimen drawn, and they accompany this on the little single sheets. They are direct representations of what the microscope shows, not made by myself, but by my friend, Mr. Walter Berry, a medical student and a graduate of the Worcester Polytechnic School.

The reason that I have given you the different powers is to show you why this thing had been overlooked, and to accentuate some of the troubles I have had in finding it. The 300 is the power that you are all used to, for that is the one the histological laboratory first puts in the hands of its students, and many teachers tell them that there is no use ever using anything else—that what you can not find with that is not worth looking for. You see it only gives a sort of topographical view of the lobule, leaving the interstices perfectly light, and causing you to believe there is nothing between these rods of cells. The 800, though, demonstrates the fallacy, and shows you there are fibers there that in some places look suspiciously like granules, with some corpuscles that are undoubtedly very much smaller than others. But still there is not enough difference in their sizes, under this power, to base any positive conclusion upon. This is the highest power that is ordinarily used in laboratories, and very few men will take the trouble to work with anything greater. I say "trouble" advisedly, because the handling of a very high-power immersion lens is one of the most difficult and exasperating pieces of work, all forms of surgery included. In the first place, your specimens must be the very thinnest that can possibly be imagined, and if you are attempting to cut tissues of different densities, like the feather and its pulp, nothing but the freezing microtome can possibly keep from tearing them apart. Next, they must be mounted in glycerin, and this,



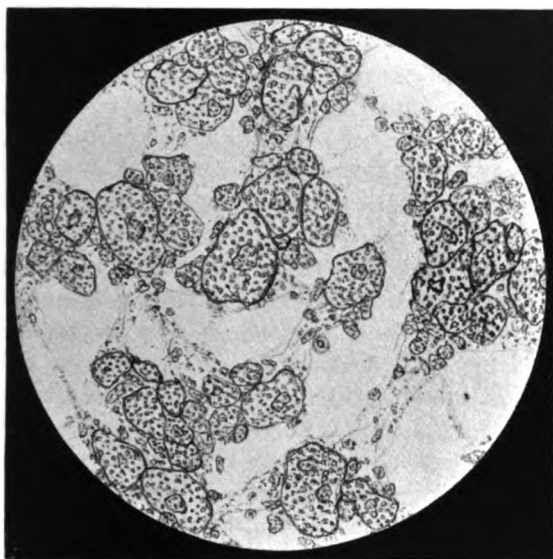
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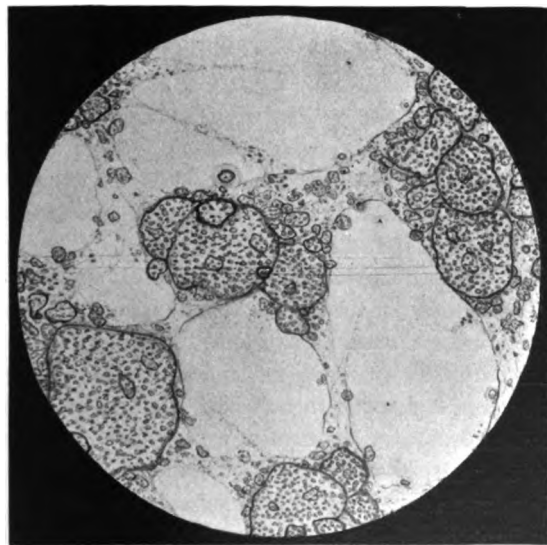
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11. Same as Nos. 8 and 9, showing gradations of development of granules into full grown liver cells. 3,000 diameters.

7. Middle of papilla. 3,000 diameters.



13



12

12 and 13. Same as Nos. 8 and 9, showing gradations of development of granules into full grown liver cells. 3,000 diameters.

you know, is one of the most tedious of all forms of mounting, for, as I have already stated, Canada balsam blurs everything. Last, but by no means least, you simply have to wait until you get the right kind of light or you see nothing. From the first day of January to the seventh of April, this year, I have kept account of the days in which the immersion lens could be used. There have been only five days in which it could be used at all, and then only from eleven o'clock in the morning to two o'clock in the afternoon, and only two of these five days have been typical days. It is true this is the worst part of the whole year for this kind of work, for the sun is away in the south, and does not give us anything like the amount of light that it will in the summer months. It is also true that Cincinnati is about two hundred miles south of New York; it is also true that it is a very smoky city. The place in which this lens is used is to the northeast of the city, and our prevalent winds are from the southwest, so that the smoke is blown over our suburb a great many days in the year. And I remember distinctly that the two days in which this lens worked the best were when we were in the middle of a high barometric area, with the wind from the northeast. The cause of all this is the fact that the aperture of the lens is very little if any larger than the head of a cambric needle, and the pencil of light which it admits is the very smallest, and magnified to the size that you see in these drawings, you can imagine how attenuated this pencil would be. So, then, to any man who attempts to follow my tracks, I must say there is nothing for him to do but to possess his soul in patience even after he has a specimen made, and wait until he gets the right light before he can say either yea or nay as to whether what I tell you is true or false. I would think that the climate of Arizona would be typical for the use of this lens. I have said, in other papers, that my belief for the reason that the Berlin school dislikes the high powers and the Viennese school is partial to it is the difference in latitude. I have tried all forms of artificial lights, and none of them have proved equal to the natural light of a bright clear day. There is something about the absorption bands of the sodium which blurs everything, and makes you uncertain what you are about. The reflected electric lights give such deep shades that you have the same uncertainty as to the shadow and substance under the microscope that you have on the streets when looking at distant objects under the electric light. Whether these difficulties will ever be

obviated I can not say. My work has had to be done in half hours scraped together, snatched from a busy practice, and I have had no time recently to experiment with the various forms of our new lights, but I sincerely hope that some one will some day overcome these difficulties, and place the lens within reach of all of us; but, until that day comes, nothing but patience will overcome these difficulties. So much for methods.

Now for the character of these anagenetic tissues themselves. My belief is, with the exception of the nervous system, they are the most highly vitalized of all the structures within the body. They are very closely connected with the nerves themselves. In the first place, they follow the routes of the blood currents, and in many places, as in the spleen, they are direct offshoots of the vessels themselves. The specimens before you show that these threads must be direct outgrowths from the capillaries within the lobule. The rich supply of the vasomotor nerves to all this vascular tissue you know as well as I do. You also know how intimate is the association of the *stratum lucidum* with the capillaries of the intestine. The same thing holds good in the papillæ of the skin, in the sebaceous follicles, in the hair follicles, and, as demonstrated before you here, in the feather papilla itself. And if we have one fundamental law laid down by which we work it is that the vasomotor nerves are omnipresent. The shape of the tissue reminds you very much of a stellate ganglion cell, and it would not surprise me after all if some day it is proved that this reticular tissue is nothing more or less than a third division of the nervous system itself, which has so far been overlooked. The branching of the stellate cells is very similar in form to the branchings of the reticular tissue. Its connections with the sympathetic we are taught with our first lessons in histology. So my belief is that these granules are controlled directly by the sympathetic system, if, in fact, their matrix is not a part of it. But, no matter how that may be, I am sure, as I stated in my opening sentence, that the protoplasm we will use up next week or next month is to-day being manufactured by our nervous systems, and that the repair of the body is accomplished directly by one central control, and is not left to the haphazard pleasure of millions of little perishable entities. After all, Virchow understood this better than all the investigators who have followed him. I know that the life of a cell is typified by that of a leaf; that it is budded out from the parent stem; that it grows to

its full maturity; that it is used by the economy for a greater or less length of time, and that sooner or later it drops into an age of obscurity and is thrown off as foreign matter; and that this law holds good particularly for the epithelial cells, and ultimately for every cell within the body.

Before we turn to the pathological side of this subject, there is one other point I wish to speak of, and that is in every tissue and living fluid of the body every histologist speaks of granular matter. At last we know where these granules come from. They are swept out of the lymphatic glands, the spleen, and the adenoid structures everywhere and carried into the blood, and these very little granules, half grown, are the ones the physiologists have been telling us so much about under the name of hæmatoblasts. For I believe that the granule, once set free from the thread, is nothing but a minute mass of vital energy which has the power not only to go on to the formation of a cell, but to the subdivision of that cell, and to work out for itself *and its line* all that we have been taught heretofore about the subdivisions and performances of cell life, particularly those of the blood and epithelial cells.

If this view be true, as I am sure it is, many of our pathological ideas must be reconstructed, and it is that I wish specially now to bring to your attention. First and foremost, the old idea of new growths being dependent upon foetal cells that have lain dormant for forty, fifty, or sixty years, must be swept away. The improbability of this doctrine was shown me years ago in reading the experiments of some German with periosteum in the lungs of chickens. Many of you will remember that these little bits placed in the jugular vein were examined after months of residence in the lung. In a few weeks they were firmly anchored; in a few more, bone was beginning to be formed; shortly afterward, almost perfect Haversian systems were found in these pulmonary infarcts. But, strange to say, at the end of six months every one of them had entirely disappeared, showing that there must be a central nerve control which resents the intrusion of any foreign substance, no matter how highly vitalized, and that if it lives at all it must be because it is sufficiently strong to resist the "trophic control" which every man believes the body possesses.

The next subject which I will ask you to study in this light is that of fibrosis in all its forms. It explains at once those heretofore inexplicable cases of cirrhosis of many organs. If the proto-

plasm is being made in these threads all the time, and the organ becomes slightly irritated, the protoplasm makes connective tissue instead of the higher specialized epithelium, and the destruction of the organ is a foregone conclusion. Last, but not least, the subject on which it has the strongest bearing, as I have already intimated, is that of new growths. At last it gives us a clew as to what they really are. I have just shown you how intimately these structures are connected to the nervous system, and how rich must be the supply of nerve connections with it. Suppose for some reason, by a trauma or in some other way, the tracks through which this nerve control is exercised should be interfered with, the tissues are left like a foreign colony cut off from the mother nation. The result of this you easily understand. The first thing, of course, if the connection is not absolutely cut, we would expect would be homologous growths; if, however, this separation is absolute, the tissues are ready for any kind of rebellion, and, left to themselves, the "histological mob" may be the result. As one of my *confreres* says, "A theory worked out in the laboratory that will not stand a clinical test is not worth the paper it is written on." But I claim for this that it not only stands all clinical tests, but it makes very simple many of our pathological riddles. Take carcinoma, for instance. Ever since the early dawn of surgery, trauma has been supposed to play a large role in its ætiology, and within the last few years many of our most thoughtful men have begun to think that a condition approaching neurasthenia also plays a greater or less part. Given these two conditions, and the fact the protoplasm is made steadily every day that it has been cut off from its nerve supply, you see at once how carcinoma might originate. You also understand how it is that some carcinomæ may begin in an adenomæ, there being a gradual change to the malignant type. You also understand why it is that a cancer may suddenly begin and grow very rapidly, after having lain quiet for a long, long time.

To take an illustration of a case: An irritated lip from an old tobacco pipe, with slight eczematous eruptions, which may have ultimated in a small papillomata. This has lain more or less quiet for years. You know that around its base there is more or less infiltration of leucocytes going on during the whole of this irritation. You know that this budding off of the granules has made more and more cells, and, between the protoplasm manufactured on the spot and the migratory corpuscles which have come in to

do police duty around the irritated place, sooner or later a band of lymph has to a certain extent isolated the papilloma from the rest of the body. The irritation kept up, this exudate is bound to be formed into connective tissue. The secondary contraction of this connective tissue is nothing but a form of fibrosis. If this contraction go on far enough, the nerve supply may be seriously interfered with. But the tips of the papillæ which are on the distal side of this fibrous band still have the power of reproducing protoplasm. The nerve supply once cut, this may go on indefinitely. The cell division, which I have said I believe Nature reserves for just such occasions, when phagocytic action is needed most, and the construction of new tissue is most required, comes in to do its rapid work. But if the trophic nerves have been severed by this band, the tissues are left to their own sweet will, and the kind of tissue they will produce no one can say. First, it may be nothing but a benign papilloma. But, left to go on, and not getting their wanted nerve control, sooner or later the nerve power with which they started out becomes weakened, and the new cells they have produced by this subdivision are of a far weaker character, and the result sooner or later will be a tissue which simply can not live. As long as the health of the individual behind it is perfect, any wandering cells that may get into the blood vessels and be swept away to other parts of the body are destroyed and handled by the good strong cells that they there come in contact with. But let some overpowering shock come to the nervous system of this individual, and the cells throughout his body become lowered in vitality, and he will no longer be able to resist this invasion, and the spreading of cancer is the result. How often is it in our experience that the death of a child, of a husband, the loss of money, the unfaithfulness of a partner in life, or some other such terrific shock only shortly precedes the rapid growth and general dissemination of a neoplasm that had before that been thought to be scarcely worth noticing. One other argument I have to bring to the proof of this is that no man ever saw a nerve in a carcinoma or sarcoma, though a few have been described in benign growths. Of course, the sarcomas of early childhood have not this neurasthenic element in them, and the only way we can explain them is that the nerve control has either not been made correctly or that by some accident they have been cut off from the very start. If this is true, we understand at once why new growths are so apt to spring up in

useless organs that have passed their functional activity, and which the economy is trying to get rid of.

This, Mr. President, is only one of the many riddles which will become plain if this doctrine is correct. The enumeration of them, though, would be tedious, and all I have hoped to do to-night is to state plainly that our protoplasm is made by specific organs, which are laid down from the formation of the being, and that it is their function to make the protoplasm just as much as it is the function of the stomach to make the gastric juice. The most important function of the body—that of the production of protoplasm—was never intended to be left to the haphazard way we have heretofore been taught. I fear I have been tedious in many places, but my only apology for it is to show you the difficulties that I have met, and to blaze out the road, as it were, for those who are to follow me. Until a man has gone through with these experiments carefully and faithfully, his word is worth nothing. The manufacture of protoplasm only by cell division is simply an hypothesis, but the growth of these granules is a reality—one that any one can see if he will only take the time and patience to prepare his specimens properly, and wait until he gets the proper kind of light. Even an ordinary hazy day will not do; nothing but the greatest number of rays condensed into the smallest space without shadow can possibly do the work. As I have not been able to find any one who has worked it in this way, I do not expect to answer the criticisms that I know this will bring down on my head from any one who has not followed out the route that I have here laid down. I give you these facts in the hope that some one will be stimulated to follow along the same line and push it even further than I have done, for the fields that it opens up, not only in physiology but in pathology, are away beyond our vision.

In closing, let me thank you for the somewhat incredulous attention which you have given me, for a thing that has taken me twenty years to work out I do not expect to be grasped in a few minutes. I do not ask you to accept these doctrines until you have tested them for yourselves; but it seemed to me that the most fitting mouthpiece I could select would be the leading body within the shadow of my old Alma Mater. All I can ask is that you weigh the evidence carefully, that some of you do the work over again, for, even though this may not be the exact route, yet somewhere near it I am sure lies the road to our future progress.

HYSTERECTOMY AS AN ACCOMPANIMENT TO BILATERAL REMOVAL OF THE APPENDAGES.

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Obstetricians and Gynæcologists.

During the past five years decided changes have taken place in the methods of dealing with pelvic inflammatory diseases. Prior to 1890 it was the established custom in America to deal with irreparably diseased appendages by removal solely through an abdominal incision. Deliberate hysterectomy as an adjunct to ablation of the tubes and ovaries was not practiced. Péan in 1886 removed by the vagina the diseased uterus of a patient whom he had failed to cure by a previous removal of the appendages. From this and similar cases he sought to establish the principle that for certain forms of pelvic inflammatory disease hysterectomy, as well as removal of the appendages, should be performed. His work along these lines, which was reported before the Paris Academy of Medicine in 1890, seems to have attracted but little attention in this country. Operators of large experience who had carefully followed up the history of these cases, subsequent to the operation of bilateral ablation of the annexa, were forced to admit that many of their patients were not restored to health. Many still suffered from hæmorrhagic and purulent uterine discharges, and the reflex symptoms, which had prominently figured among the indications for the operation, persisted to a greater or less degree. In order to do away with these unfavorable sequelæ, portions of the uterus were surgically treated. It was urged that in every case where the appendages were to be removed for chronic inflammatory disease the uterus first should be thoroughly curetted and drained. Also that the tubes should be dissected out of the uterine cornua in order that no diseased tissue be left behind. Although these procedures were carefully carried out, there still remained cases which presented the old train of symptoms. Hence when Polk's paper (1) on Hysterectomy (Suprapubic) for Salpingitis and Ovaritis appeared in the latter part of 1893, in which hysterectomy was advocated in every case where both appendages had been re-

moved for serious disease, the idea, coinciding as it did with the clinical observations of many operators was eagerly seized upon by prominent gynæcologists throughout the country and immediately put into practice. Since that time hysterectomies have been done by the score in this class of cases. Is it not well to pause after three years' work in this line and ask ourselves *not* how many uteri have been removed during this period, but how much has been learned from careful microscopical and bacteriological examinations of these removed organs? In other words, do the pathological lesions found in the ablated uteri confirm the correctness of the reasoning of those who, mainly upon clinical grounds, advocate hysterectomy in certain inflammatory pelvic diseases. Henro-tin (2), at the last meeting of the American Gynæcological Society, states that "the position of advanced, observant gynæcologists, who are not hampered by tradition or custom or afraid of their own stubborn dogmatic expressions in the past, can be stated as follows: 'In every operation for septic diseases of the female generative organs which demands the removal of the tubes and ovaries hysterectomy should also be performed unless there are contraindications forbidding it.'" Now, I consider this a fair statement of the present position of surgery upon the subject. The whole question will turn upon what interpretation be placed upon the phrase "contraindications forbidding it." The more carefully the removed uteri are studied in connection with the history of the case and the condition of the pelvis found at the time of the operation, the nearer will we be to determining what will constitute a "contraindication." If it can be shown that certain pathological uterine lesions, either of the mucosa or of the deeper structures, are susceptible of cure without removal of the organ, then considerable advance has been made toward establishing another contraindication. On the other hand, microscopical examination of the removed organ may show such decided morbid changes in its structure as to render any curative treatment short of ablation ineffectual. This line of research may not be the easiest or most enticing. One would far rather have a universal rule for guidance, such as is laid down above, but conservative surgery does not advance along these lines. For example, it is much easier to adopt a universal rule to operate for appendicitis in every case as soon as the diagnosis be made. Yet those who advocate and observe this rule are in the vast minority, and ever will be so long as it

can be proved that a certain percentage of cases recover by adhering to other modes of procedure. The technique of hysterectomy has been so perfected that in the hands of the skilled operator the mortality is increased but little if any over that resulting from removal of the tubes and ovaries alone. This fact, however, does not justify one in removing the uterus in every case. While clinical experience has shown me that a certain percentage of my cases were not cured after their pus tubes were removed, on the other hand it has also demonstrated that certain cases did recover after this treatment. It seems to me it is plainly the surgeon's duty under these circumstances to endeavor to solve the problem why one set of cases recovered and the other did not. The reason must lie, other things being equal, in the condition of the uterus at the time of the operation. How can these different conditions be studied and definite rules of procedure be established except it be upon both pathological and clinical grounds? Yet a perusal of the literature emanating from our gynæcologists upon hysterectomy for inflammatory affections will show that their conclusions have been arrived at mainly from a clinical consideration of the subject. That this is a dangerous mode of studying any surgical question and one liable to lead to grave errors is demonstrated by the abuse of ovariectomy when it was performed for symptoms and not for demonstrable pathological lesions. I fail to see the line of reasoning adopted by Polk. He—the advocate *par excellence* of conservative surgery, who would leave in an ovary or part of an ovary with everything else removed—advocates the removal of the uterus in every case of bilateral ablation of the appendages because *some* cases fail of cure without this additional procedure. What right has he or any one else to justify his position by claiming that the “emasculated uterus” is a useless organ and hence should be sacrificed? It should be sacrificed if it is so diseased that no known procedure can effect its cure, and that should be the only justifiable ground for its removal. One who claims so much for thorough dilatation and curettage of the uterus, in the way of depletion and drainage, should surely obtain better results than are shown by his advocacy of the proposition to perform hysterectomy in each and every one of these cases.

I am making a plea against the adoption of a universal rule in regard to these cases as if it were for all time settled. I claim that the surgeon has no right to remove the uterus after ablation of

the appendages unless he is convinced that the organ is diseased beyond the hope of cure by less radical methods. Krug, in the discussion of Polk's paper, said he had "never found a healthy uterus when there had been such inflammatory disease in the tubes and ovaries as would warrant bilateral salpingo-oöphorectomy." It is not a question, it would seem to me, of the uterus being always found diseased in these cases. As most inflammatory diseases of the annexa arise from some form of intra-uterine affection, it would be remarkable if the uteri were perfectly healthy. The question is, how much are they diseased and how can this disease be cured. I would not belittle the work of those who were the first to advocate hysterectomy for inflammatory disease. I consider it a great step in advance, and for certain conditions it is the only procedure which should be adopted. But I do believe that the prediction of Baldy (3), made two years ago in a paper on this subject, that uteri might be removed which might safely be left behind, has proved true to a far greater extent than any one could have predicted.

Even if the uterus be a functionless organ after bilateral salpingo-oöphorectomy, I do not think that the most radical operators would urge that it be removed for this cause alone if he could determine in what cases it could "safely" be left within.

The investigations of Wertheim (4) have thrown considerable light upon gonorrhœa of the uterus. They would tend to show that the deeper uterine structures are affected to a greater degree than formerly supposed. There is in many cases infiltration of the muscle with hyperplasia of the vessel walls. That the gonococci can penetrate into the muscularis is considered highly probable by Wertheim, though he has never, bacteriologically, demonstrated their existence (5). That a metritis with sensitiveness and a general enlargement occurs in gonorrhœal disease of the uterus is a well-known clinical fact, but that it is due to the gonococcus has never been proved, because the muscular tissues being an unfavorable soil for the germs, they either perish or pass on through the uterine wall to the peritonæum. Madlener (6) claims to have actually demonstrated the gonococci in the muscular tissue in one case where the uterus was removed seven weeks after confinement.

Gonorrhœal disease of the uterine deeper structures offers, then, an explanation of the poor results obtained by treatment through the curette and drainage. Removal of the endometrium leaves the deeper structures still diseased, and in a short time the old symp-

toms will again appear. For this reason Werth (7) claims that, inasmuch as it is impossible clinically to distinguish the forms of endometritis in which the deeper tissue is involved, a thorough cauterization after curettage should always be employed. He recommends liquor ferri, and shows that after its use a regeneration of the epithelium is delayed.

These conclusions were arrived at from a careful microscopical examination of uteri removed after curettage performed some days previously, and are therefore more valuable than mere theoretical conjectures in the matter. In another article (8) he shows that the endometrium is never entirely removed, patches untouched by the curette always remaining. The cornua were most likely to be spared.

Just what percentage of cases of inflammatory disease of the annexa are due to gonorrhœa it is hard to say. Probably twenty-five per cent. would be a conservative estimate. It is generally conceded that Noeggerath's (9) picture of latent gonorrhœa and its frequency was exaggerated. Yet no one can question the important *role* played by the gonococcus in the production of pyosalpinx. Apparently gonorrhœa of the uterus is especially difficult of cure, and this should have weight in deciding whether hysterectomy should follow removal of pus tubes.

Schauta (10) takes a very decided stand in this matter. From the results of his observations he finds that only fifty-nine per cent. of cures result when both appendages are removed, and only twenty-three per cent. where one side was removed. When this lesion is due to gonorrhœa, he, like Tait, claims that when one side is removed the other should be also together with the uterus. This recommendation is not based, it seems to me, upon sound scientific principles, and is not advocated by the majority of gynecologists. If this dictum be followed, then we practically concede that we are powerless in the presence of gonorrhœal disease to effect a cure short of hysterectomy. While the investigations referred to above have shown us why frequent failures result from our efforts to cure gonorrhœa of the uterus, still I do not believe that every case of gonorrhœal endometritis is incurable. A certain proportion of the twenty-five per cent. will no doubt fall under this category, and in time we shall be in a position to recognize these cases and act accordingly. Much will depend upon the wishes of the patient in cases where one side is unaffected (11). She may

demand the most radical operation if there exist a possibility of the other side becoming affected. On the contrary, she may be desirous of children, and be willing to risk the possibility of a secondary operation from the failure of intra-uterine treatment. Schauta makes every exertion to establish the diagnosis of gonorrhœa prior to operation, and during the progress of the latter has the contents of the pyosalpinx examined for the gonococci. If gonorrhœa is found to exist, both annexa and uterus are removed, on the ground that the gonococci work irreparable change in the uterus, while the inflammation of the appendages due to streptococcus and staphylococcus infection is usually one-sided, and the uterine lesion usually heals, and consequently the uterus can safely be left. As more than fifty per cent. of the cases of inflammatory disease of the annexa are considered to arise from infection after abortions or the puerperal state, it will readily be seen that, if Schauta's claims be true, there are many cases where the uterine lesions will either be cured or be amenable to treatment after the removal of the annexa.

More such investigations should be made, and, by the collection of both bacteriological and clinical data, rules can be formulated which will be of inestimable value to the surgeon in deciding what should be done in a given case. Whatever may be said to the contrary, hysterectomy is a much more radical procedure than bilateral removal of the annexa, and should never be performed except when demanded for the cure of the patient.

Some advocate hysterectomy on the ground that twelve per cent. of chronically diseased annexa requiring removal are found to be tubercular upon microscopical examination, and that the uterus may be affected also (12). This position is strengthened by the observation of Cullen (13), who thinks tubercular disease of the uterus is usually secondary to that in the tubes. But tubercular uterine disease is usually demonstrable by the examination of scrapings, and hence it is possible to have a fairly clear idea of the condition of the uterus prior to the operation. Where the uterus is found to be tubercular, it should always be removed, because of the difficulty of curing it by intra-uterine treatment.

Where the microscopical appearances of the annexa show tubercular deposits, it would seem advisable to remove the uterus, because of the serious nature of the disease, the possibility of the uterus being affected, and the difficulty of curing tubercular uterine disease by the curette. If the microscope shows tubercular dis-

ease in the appendages unsuspected before, the uterus can be removed by a secondary operation.

At the last meeting of this Association, a former chairman of this section, Dr. Eastman, remarked, in speaking of hysterectomy for fibroids, that he was not at all sure of what the after-effects of complete removal of the uterus would prove to be; that he found vaginal prolapse, cystocele, and rectocele following some cases, and that he would be obliged to suspend judgment until he had operated on more cases by this method. This by a man who has probably performed as many if not more complete hysterectomies than any operator in the country. It would seem as if the lesson to be learned from the remarks of such a man was to go a trifle slow in urging that the uterus be removed. It is generally conceded that, when we are obliged to remove an organ, it is a practical acknowledgment of defeat. Starting from this defeat, our surgical efforts involving removal may end in victory as regards the health of the individual.

We must continually keep before our minds the two great classes of cases calling for bilateral removal of the annexa, and it is only necessary to recall our past cases to find examples of each.

The first is where there is advanced disease, usually chronic, involving both annexa. The tubes and ovaries, either filled with or free from pus, are bound down in the posterior *cul-de-sac* and to the omentum and bowels by dense adhesions. Much labor must be expended in enucleating these masses, and much injury may be done the uterus in separating it from the pus sacs. Repeated infections, with resulting metritis and endometritis, have also greatly impaired its integrity. Here the indications are clearly for removal of the uterus. Its peritoneal covering may be so injured that if left it will be firmly bound down by dense post-operative adhesions, and give rise to great suffering. These are the cases where hysterectomy will give brilliant results as compared to the older methods. But these are not the usual but the severe cases, and fortunately the exceptions.

The second class is the one which we are considering in this paper. Here the recurrent attacks of pelvic peritonitis have been fewer, hence the adhesions less. The tubes and ovaries may be the seat of purulent collections, or their contents may have become changed to a cheesy material, with thickening of the walls. The fimbriated extremities of the tubes are closed, and no conservative

operative procedure can be entertained. The uterus is enlarged but fairly movable. The masses on either side having been removed without much difficulty, the operator is then confronted with the question of whether or not hysterectomy shall follow. His decision will depend largely upon the condition of the uterus and the possibility of its being cured by treatment directed to its interior, aided by the atrophy resulting from the removal of the appendages. Careful recorded observations, both pathological and clinical, will result in rules which will guide the surgeon in his choice of procedure.

PYTHIAN TEMPLE.

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EXTRAPERITONEAL SHORTENING OF THE ROUND LIGAMENTS.*

(THE ALEXANDER-ADAMS OPERATION.)

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Shortening of the round ligaments of the uterus has been in practical form before the profession since 1882. Many articles have been written upon the subject, but it still retains enough interest

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to warrant me in hoping that my paper will elicit a generous discussion from this Society. The history of this surgical procedure is so well known that it would not be profitable to enter into its details, so I shall pass it over.

Indications for the Operation.—The operation is suitable for any case of chronic retrodisplacement of the uterus, no matter how complicated, provided always that the complication or complications can be satisfactorily removed. It is indicated—

1. In cases of simple chronic backward displacement resulting from subinvolution of the round ligaments.
2. In cases of non-adherent retrodisplacement of the uterus associated with prolapsus of one or both ovaries.
3. In cases of adherent uteri, accompanied or not with diseased ovaries or tubes, or both, when the pathological condition can be satisfactorily dealt with by an opening into the abdominal cavity, made either through the post-vaginal fornix or through the abdominal wall.

The operation is contraindicated when all the pelvic organs are much matted together by the products of inflammation; when the uterus is the subject of intramural fibroids or other enlargements of an incurable kind. Alone it is not suited to cases of prolapsus uteri. It is not demanded, in recent cases of retrodisplacement, as the result of subinvolution of the round ligaments, when the supports under proper treatment may regain their tone and thus be enabled to perform their functions.

Scientific Reasons for the Operation.—The many operations devised and practiced for the cure of retrodisplacement of the uterus proves conclusively that, in the minds of men who think most about this subject, there is an almost unanimity of opinion that this pathological position produces, sooner or later, distress, and should have early attention. It also demonstrates that the old methods of artificial supports do not satisfy the indications. Pessaries, when properly fitted, in a minority of chronic cases, will hold the uterus in its normal forward position, but they must be worn for a lifetime, and to guard against evil results they require monthly care and watching. At best they are but filthy makeshifts. Operations devised for the purpose of correcting retrodisplacement of the uterus naturally range themselves into two divisions: 1. Those having for their object the repair of the injured supports. 2. Those by which new and false supports are to be created. In the first division are

found extraperitoneal shortening of the round ligaments (Alexander's operation) and intraperitoneal repair of these supports, as devised by Wyler, Dudley, and others. In the second division we have abdominal and vaginal fixation.

All scientific surgical work has for its object either the repair or creation of structures, so that they may as nearly as possible perform the functions for which Nature intended such parts.

The supports proper of the uterus are the round ligaments and the utero-sacral ligaments. They are actual prolongations of the uterus itself, have fixed points of attachment, are made up largely of muscle tissue, and have all the functions of muscles. The other (so called) ligaments of the uterus are composed of peritonæum and fascia and possess only a binding or fixing force.

The functions of the utero-sacral ligaments are to sling the uterus in the pelvis and to hold the lower uterine segment and cervix in the hollow of the sacrum. This they are enabled to do by their attachment to the bony pelvic wall and by their muscular action.

The round ligaments issuing from either horn of the uterus, being actual extensions of its upper angles, pass through the inguinal canals to form their fixed attachments to the pillars of the ring and fascia covering the pelvic bones. They serve to hold the uterus forward and to return it to its normal position when it becomes physiologically displaced, as by an overfilled bladder.

Under no circumstances do they hold the uterus up, nor can they be made to do so, in cases of prolapsus. If these ligaments or muscles, as you choose to call them, possess no congenital defect, and have not been injured by undue strain or want of involution, after physiological elongation, they will perform their functions and keep the fundus uteri behind the pubic bone. When they have been subjected to injury, so that they can no longer do the work for which Nature intended them, their repair is, in my mind, the only true scientific surgical procedure at our disposal.

When this can be done, any operation looking to the production of unnatural, artificial supports, that of necessity are devoid of power beyond that of fixation, is both unsurgical and unscientific.

Objections urged against the Operation.—It is argued against the extraperitoneal repair of the round ligaments (Alexander's operation)—

1. That it is difficult of performance, surgeons never being sure of success.
2. That the ligaments are sometimes absent.
3. That they will not always hold the uterus forward.
4. That the operation places the organ in a false position.
5. That the uterus will again sooner or later return to backward displacement.
6. That it is often followed by hernia.
7. That there is danger from it of a fatal result.

In answering these objections I shall speak from a nine years' experience with the operation, and base my statements on its application to ninety-one cases done up to January 1, 1896. Twenty-five of these cases I have examined, or had examined for me, two years or more after the date of operation. In answer to the first objection, I can only say success must depend upon the ability of the operator.

In my first case, because of my want of knowledge as to the appearance of the structures for which I was searching, I failed to get the ligaments. I believed they were absent. Before attempting the operation again, I made a large number of dissections, and satisfied myself that they were always present and of sufficient strength to hold the uterus forward. My experience since then has served to deepen those convictions, and I now unhesitatingly say that in every case the ligaments can be secured, and will be found sufficient, when properly repaired, to keep the uterus in its normal position. I have yet to see a case with the ligaments so small or so friable that they will not perform their functions.

Objection 4 says the uterus is left in a false position. I can not understand by what process of reasoning men bring themselves to believe that repairing or properly shortening the round ligaments will place the uterus in a false position. The function of these structures normally is to hold the uterus forward, at the same time to allow of a certain mobility. Now, if the ligaments be shortened too much (by a faulty operation), the uterus may not for a time possess its usual freedom, but Nature will soon overcome the abnormal tension and secure to the organ its accustomed movements, and allow it to occupy its normal plane.

Objection 5: My experience has proved beyond a doubt that when the operation is properly done, on suitable cases, the ligaments will perform their functions and the uterus will not again

become displaced backward. It must, however, be borne in mind that the ligaments are only repaired—that is, made as near as possible to normal, and that they may again be the subjects of injury or subinvolution.

Objection 6, which states that hernia is a frequent sequel, has some foundation in fact. This unfortunate occurrence is not frequent, but it sometimes occurs. It is due to faulty technique, and follows in the footsteps of suppuration. It may also result from weakening of the external oblique muscle when the canal has been opened to the internal ring.

Objection 7, which warns us that fatal results may follow the operation, I consider not well taken. The operation is practically devoid of danger. In my cases I never saw any occasion for alarm. Since the danger of hernia following this operation is the only objection that can with justice be urged against it, and as this results as a rule from suppuration, too much care can not be exercised in the preparation of the patient.

The Technique of the Operation.—The technique of the operation as I perform it is as follows:

Forty-eight hours before the time set for the operation I have the bowels well acted upon by some efficient cathartic. The evening preceding the operating day the pubes and vulva are shaved, these parts and the abdomen scrubbed with a clean brush, green soap, and warm water for five minutes, then with alcohol for five minutes, to dissolve the fat accumulations from the skin follicles, then again with soap and water, and lastly with plain sterilized water. After this has been completed, a gauze pad saturated with a solution of bichloride of mercury (1 to 4,000) and large enough to cover the abdomen and pubes is bound upon this region and left there until the time of operation.

My armamentarium consists of a knife, a pair of scissors, six non-corrugated compression forceps, a needle holder, several needles, No. 2 catgut achromicized, six strands of silkworm gut, plain gauze, and a roll of two-inch rubber adhesive plaster. With the exception of the plaster, these are all sterilized with the utmost care in proper receptacles, in which they are kept until they are required. The aim throughout is to secure surgical cleanliness. I adopt aseptic rather than antiseptic precautions. I select for the hour of operation early afternoon, because the patient's vitality is greatest at that time, and because, having had some break-

fast, the depression resulting from long abstinence is not encountered. The patient being under an anæsthetic, the immediate site of the operation is again thoroughly scrubbed with green soap and hot water and washed clean with sterilized water. It is then surrounded with sterilized dry towels.

The ligaments are best found by making an incision not exceeding an inch in length, beginning at the spine of the pubis and running outward and upward on a line with Poupart's ligament. This cut must be carried down until the external abdominal ring is opened up. The finger alone should be used as a guide. With so small an opening, you can not well see the structures being severed, and, even if you could, the landmarks can be more thoroughly appreciated by the sense of touch. Having reached the external abdominal ring and divided the intercolumnar fascia, pressure should be made on either side of the opening. This will cause to be extruded a small bunch of fat which will contain some of the fibers of the ligament. This bunch of fat, in its entirety, should be grasped by forceps and drawn out of the opening, when the ligament will be put upon the stretch and can be easily felt in its course under the acute angle formed by the junction of the pillars of the ring. A hook should not be used to fish out the contents of the external opening, since, as a rule, it will catch up part of the soft internal oblique muscle and so mix up the structures as to seriously impede the progress of the operation. Having secured the ligament, it is separated from its accompanying nerve and stripped of its fascia, when it can be easily drawn through the inguinal canal. In doing this I use my fingers, for two reasons: First, because forceps bruise and injure the tissues, and, second, because I can better judge of the force I am applying and of the ability of the ligament to withstand the strain. The amount to be withdrawn will depend upon the degree of displacement. It will vary from three to five inches. It is seldom, if ever, necessary to practice vaginal touch or use a sound to ascertain that the uterus is forward, or to carry it into that position. The reduplication of peritonæum, which shows as a white covering on the thick and fleshy muscle as it nears the uterus, is an infallible guide as to the amount to be withdrawn. While search is being instituted for the second ligament, the wound already made is protected by being packed with sterilized gauze. There is seldom much bleeding, and the application of a ligature is almost never necessary. The second

ligament being secured, they are both drawn out equally and intrusted to an assistant, who keeps them tight while the surgeon secures them in their new positions. Many methods ingenious and novel have been devised for this purpose. I prefer Nature's plan of securing muscles to fixed points, so I stitch them with catgut to the fascia covering the pubic bone and to the pillars of the ring, at the point of their attachment to the os pubis. Three things are accomplished by this method: 1. A firm fixation is secured. 2. The ring is more effectually closed. 3. The pain associated with the operation is minimized. The pain is largely due to dragging upon the sutures that penetrate the skin. The external wound is closed by three silkworm-gut sutures that are made to encircle the whole depth of the wound, taking in both pillars of the ring and penetrating the ligaments. These, when tied, approximate accurately the severed parts and prevent their separation by accumulations of serum or blood. Drainage by tube or strands of silkworm gut I have not found necessary. I employ as a dressing a pad of sterilized gauze held in place firmly by strips of adhesive plaster. The time required for the operation will vary from ten to thirty minutes.

After-treatment.—Until the patient can empty her own bladder the catheter must be used every four hours. During the first week she must be kept upon her back. The legs may be flexed and supported on pillows placed under the knees. The bowels may be acted upon at any time during the first week by means of calomel or salines. To prevent straining, an enema should be administered when the bowels show an inclination to move. Up to this time the diet must be light.

The sutures may remain until the tenth day, unless suppuration occurs, when they should be at once removed and the wound freely opened up. The patient should not be allowed upon her feet before three weeks. I have not found it necessary to introduce a pessary at the time of or subsequent to the operation.

Causes of Failure.—The causes of failure in the operation are:

1. Want of familiarity with its technique; in other words, want of ability to perform it properly.
2. Failure to properly deal with complications, that must be removed before the operation can be a success.
3. Conditions that contraindicate the operation, as large intramural fibroids, or extensive irremediable pelvic adhesions.

4. Want of attention to the details of the operation, whereby abscesses result that may burrow down between the layers of the broad ligaments and endanger the life of the patient. Hernia usually follows such want of care.

Diseases of the ovaries and tubes, adhesions restraining the mobility of the uterus, and pediculated tumors of small size may be dealt with by an incision made through the anterior or posterior fornix of the vagina. All pathological conditions of the cervix, of the endometrium, or of the pelvic floor must be corrected as far as possible before we can hope for success from repairing the round ligaments.

After-results.—The results of the operation as I know them will best be expressed by giving the chief details of the ninety-one cases on which I have operated. They are as follows:

Number	91
Deaths	0
Operations completed.....	90
Operations with abdominal section.....	2
Operations with vaginal section.....	6
Operations with amputation of the cervix and repair of the pelvic floor.....	30
Operations with repair of cervix and pelvic floor.....	40
Pregnancy after operation.....	4
Cases examined two years or more after operation:	
Number	25
Deaths	0
Operations with abdominal section.....	2
Operations with vaginal section.....	0
Operation with amputation of cervix and repair of pel- vic floor.....	10
Operations with repair of cervix and pelvic floor.....	11
Pregnancy after operation.....	4
(One case a primipara of thirty-seven years, instru- mental. Three cases deliveries normal. In all four the uterus remained forward after involution was com- pleted.)	
Cured anatomically.....	23
Cured symptomatically.....	19
Uterus returned to backward displacement.....	2

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EDITORIAL.

SUSPENSION *VERSUS* FIXATION FOR MALPOSITION OF THE UTERUS.

In the last two editorials we discussed the different methods in vogue for the relief or remedy of prolapse and retroversion of the uterus and, in a general way, we touched upon the two procedures which this month we shall consider in detail not only in regard to their indications as surgical measures but also from the standpoint of their relation to each other.

Concerning the first point of our consideration, viz., the *indications* for these operations, it is necessary to distinguish. Those who have read our editorials of the past few months will be in no doubt as to our position. We have not hesitated to state and to maintain that neither operation is indicated under any circumstances and, for the benefit of those who have not followed the series of editorials, we refer our readers to the June and July issues of the JOURNAL for the scientific and logical exposition of our belief. To those who believe and practice these surgical methods—and they are many—the indications are very plain, namely, all cases of backward displacement of the uterus, with or without prolapse, and the latter condition itself unless associated with some extraneous disease which would call for hysterectomy at once. There is no quarrel among the advocates of these two operations either as

to pathology or as to indications; it is on the subject of the operations themselves—whether or not one is of greater benefit than the other or whether one is not of positive detriment while the other is completely beneficial—that a split has occurred in the ranks. For the advocates of *suspensio uteri* were formerly the apostles of fixation and it is upon their extensive experience with the latter operation that they base their opposition to it and have brought forward the former operation to supplant it. They maintain and have fairly proved that fixation of the uterus when *successful, i. e.*, when the organ remains permanently fixed against the abdominal wall, not only does not relieve the symptoms for which it is performed but really aggravates them, while it is a constant menace to future pregnancy; the weight of testimony being overwhelmingly to the effect that it always causes abortion after the third month. They further declare and prove from their own experience that, when fixation seems to have cured symptoms and does not interfere with pregnancy, it is because the attachment to the abdominal wall, by which the operator intended to hold the uterus immovably drawn up, has stretched or torn loose so that, in the former case, the organ is not “fixed” but has become, through the remedial power of beneficent Nature and contrary to the design of the operator, “suspended.” And thus is harm averted! In these cases, they say, the two points of attachment or the broad peritoneal attachment by which the uterus was “fixed” have stretched out into bands or false ligaments of sufficient length to allow the uterus complete mobility in all directions. Thus is presented to us the edifying spectacle of an operation which succeeds only when it fails! And the worst of it is that, though it sounds so, it is not a “most ingenious paradox.” By the showing of its formerly most enthusiastic advocates, it is merely an absurdity of scientific men. And now let us ask the calm judgment of our readers: Were we too severe in our strictures and did we exaggerate, when we dubbed this operation eclecticism? What is eclecticism? Is it not a frantic and blind plunge into a “grab-bag”—the delight of our childhood’s days? In a scientific sense is it not the adoption of a practice not indorsed or at least not thoroughly indorsed by those principles which we believe to be true? Is it not the superstitious sacrifice of Truth to Chance? Where are the “scientific principles” upon which the method of uterine fixation was originally adopted by the present advocates of “sus-

pension"? How are they so easily disproved by a little experience, if originally founded on a true basis? Was it not another case of a blind plunge into the surgical "grab-bag"? So much for "fixation"!

Now let us consider the advocates of "suspension." Is their position much better? They are, in the first place, self-confessed eclectics, because they acknowledge having practiced the "fixation" method without, by their own showing, sufficient scientific grounds for its adoption, and they have now given it up not on account of their previous knowledge of anatomy and physiology, which should, at the onset, have sufficed to have condemned it, but because, having accomplished much harm by its use and no good, they are forced by an experience, which even a layman would have been obliged to accept, that the work they have been attributing to "the great advance in medical progress" has been merely a thoughtless interference with the laws of Nature.

What is the argument in favor of "suspension" as an operative cure for uterine prolapse? It is that, in order to cure the symptoms, the uterus must be allowed sufficient mobility to allow it to find its own level—the *plane*, in other words, which is peculiar to it and at which alone its functions can properly be performed. What this *plane* is for any individual uterus, it is evident we do not know, but we may profitably ask ourselves how is this plane preserved by the uterus in a state of health. We know that this can only be by the action upon this organ of the broad and the uterosacral ligaments and of the pelvic fascia, to which they are attached and upon whose integrity their proper action must be intimately dependent. If, then, we know that the uterine ligaments are sufficient, in a state of health, to uphold the uterus at its proper level, why in the name of reason do we not endeavor to discover the cause of the temporary inefficiency of these natural supports and, having discovered the cause or causes, endeavor to restore to them their wonted power? Why should we drag the uterus up by false ligaments when its natural supports are staring us in the face, waiting to do their work, if we will but give them a little assistance to recover their strength? If the uterus be heavy from subinvolution, why not induce involution by the means which we ought to know and thus reduce the organ to a size at which its ligaments can give it support? If the pelvic fascia is lacerated and no longer gives due support to the pelvic blood vessels and the pelvic organs

which the latter supply—the bladder, the uterus and its annexa and the rectum—if the loss of resiliency in the uterine ligaments is due to this cause, is not the restoration of the torn and overstretched pelvic fascia and the proper support of the pelvic vessels by plastic work indicated? What else could be indicated if not the proper means to an end? If retroversion or prolapse be due to inflammatory shortening of the uterine ligaments or to old peritoneal adhesions, why not recognize these conditions as the causes of disease, treat them locally until they are cured—which can be, has been and is done daily, to our personal knowledge—or stretch the old adhesions until the uterus is quite free and easily replaced by the fingers? After the uterus is replaced and has been supported for a time by a properly fitting pessary until the convalescent uterine ligaments have recovered their normal tone and strength, the artificial support may be dispensed with and the uterus will remain in place, supported by its own ligaments in a state of health.

There is an answer to all this, which comes very patly from many gynæcologists whenever the indication especially for plastic work is urged. It is to this effect: "We have tried plastic work, but we have not succeeded with it; therefore we have given it up for the 'false-ligament' method which, as you say, may not be according to the laws of anatomy or physiology but, as it relieves our patients, is good enough for us." As many men who use this argument now in favor of suspension used it as glibly but a short time ago in favor of the fixation method which they now condemn, one can not hear the latter part of the above statement without an involuntary reflection upon the reliability of statistics but, apart from this, the whole argument is disingenuous in the extreme. Its validity as an argument at all depends upon the satisfactory answer to three self-suggesting questions, namely: I. Are you quite sure that your manual dexterity and mechanical judgment are sufficient to enable you to do good plastic work? II. Are you sure that you understood correctly and carried out properly its author's design in the particular plastic operation which you employed? III. Are you sure that the plastic method which you correctly performed was itself correct in principle and capable of accomplishing the end sought? Unless an operator can answer these three questions to the complete satisfaction of his conscience, he has not only no right to condemn plastic work as a surgical measure in general but no right even to attempt any particular

plastic method. It is primarily a matter of honesty. A conscientious man, to say nothing of a scientific one, will know before he operates what he means to do, how he means to do it and that the method he is about to employ is scientifically applicable and adequate to the end in view. Let us suppose the case of a gynæcologist who has faithfully and correctly applied all the various plastic methods of which he had knowledge and who has found them all inadequate—there may be such cases. What is he to do? As a thinking man he must realize the fact that it is far more probable that he is ignorant of the proper means of cure because he has not found it than that it does not exist. Under these circumstances it would be his duty not to desist from his search until he had found what he sought. Of one thing such a searcher may be sure, that when any surgical method is really indicated for the cure of a certain disease, its applicability can be entirely reasoned out beforehand—its conformity to known anatomical, physiological and mechanical laws proved—so that its actual application to a given case will be, if its technique be perfected, merely a confirmation of a foregone conclusion.

This digression upon plastic work has been made necessary because it furnishes a refutation of the only argument—quoted in effect above—by which the advocates of fixation or suspension of the uterus for retroversion or prolapse of this organ, at least in multipara, maintain their position.

We rejoice at the advent of the suspension theory because it is a long step in the direction of true pathology and must sooner or later lead to a full appreciation and proper respect for the mechanical laws by which the functions of the pelvic organs are governed. When this glad era has been generally inaugurated, gynæcology will cease to be a specialty in experimentation and will at last have become a science.

TRANSACTIONS OF THE AMERICAN GYNÆCOLOGICAL
SOCIETY.

SECOND DAY.

Wednesday, May 27th.

*Afternoon Session at 3 P. M.*The *President* in the Chair.

TREATMENT OF EXTRA-UTERINE PREGNANCY.

BY HOWARD A. KELLY, M. D., BALTIMORE.

(See page 129.)

TREATMENT OF EARLY RUPTURE OF EXTRA-
UTERINE PREGNANCY.

BY FERNAND HENROTIN, M. D., CHICAGO.

(Author's Abstract.)

The author believes no disease in which surgical interference is called for demands a greater exercise of broad sense than extra-uterine pregnancy, with its varied symptoms and its startling, often tragic developments. The paper is entirely devoted to the consideration of ruptures occurring before the eighth week, and with free primary abdominal hæmorrhage. The fact that large, free bleeding of the sudden and unexpected variety is usually the result of very early rupture is commented on, and the symptoms of intra-abdominal hæmorrhage carefully described, accompanied by the recital of an illustrative case. After a careful outline of the differential diagnosis and a survey of the literature concerning this class of cases, the balance of the paper is devoted to an elaboration of the different symptoms as affecting the treatment. The ground is taken that occasionally it is possible to differentiate between tubal abortion and tubal rupture, that, in many cases which can be recognized by close scrutiny of the symptoms and physical signs, ex-

treme shock should not be taken into account, but the patient operated at once; that unless it is suspected that the operation was not aseptic or septic material is encountered, no time should be lost in cleaning the abdomen, but that, on the contrary, the fluid blood left in will assist Nature to sustain the patient. The doctor furthermore details the different steps of the manner of operating, when to drain, and when not to drain, and closes with an argument in favor of always operating through the abdomen and never by way of the vagina. Altogether, the paper covered the practical points concerning the diagnosis and modern treatment of these dangerous cases, taking issue to a certain extent with the views of Maurice Richardson, of Boston.

DISCUSSION.

Dr. BOLDT: I think we have all listened with a great deal of interest to the two valuable papers upon these very important subjects, and I do not think that any of us will differ in the method of treatment. In the paper read by Dr. Kelly, if I am not very much mistaken, he refers to that class of cases which we have always been in the habit of considering under the head of retro-uterine hæmatocele, considering the majority of them as due to a ruptured tubal pregnancy. The treatment advocated for that form of trouble is that which would appeal to the common sense of every one, and I think there is no question but what it will be invariably adopted. I can fully appreciate the stress Dr. Kelly laid on the danger of hæmorrhage in that form of cases. There is one item in the technique of opening those retro-uterine hæmatocèles in which I would differ from the doctor. Instead of using the scissors, I think it will be found to be of decided advantage if we use the uterine dilator, which has been sharpened at the points, and inserting that we dilate, and between the points of the uterine dilator put in a rectal dilator which has wide and round blades, larger than my thumb; then, by washing that out in the same way that Dr. Kelly has proposed, it will give the desired result. Now, in regard to the class of cases which Dr. Henrotin has spoken about, I think there will be a great many who will have reason to differ as to the time of operation, as to whether we should operate on that class of cases where the patient is in a state of profound shock. Personally, I would never operate on a patient in such profound shock, and I heartily congratulate the doctor on his good results

in that one particular case. The proper thing to do always is to wait until the shock has been allayed and then operate. When a patient is suffering from tubal abortion, and when she is suffering from a rupture, that is a point that I have not been able to lay down any rules on; and it has been very interesting to me to hear the remarks which have been made. At the same time, I would not consider that they would be absolute.

Dr. WATHEN: I believe that the treatment of these cases reported by Dr. Kelly is the correct treatment, because the results will in nearly every instance be nearly perfect, and the dangers are so much less than in the operation through the abdomen. I have followed the same plan in operating in these cases, and have had no trouble, though in a patient recently operated upon the abdomen was very much distended, the woman had not been able for two days to pass fæces, vomited a green vomit, with a pulse of 140, and considerable elevation of temperature. She made an uninterrupted recovery, and I believe she would have died from shock had the abdomen been opened. My method is simply with the fingers or knife to make a small opening in the vaginal wall, doing the balance with my finger, pressing down from above, and with my finger dissecting the tissues until I come in contact with and open the sac containing the hæmatocele. I believe there are but few cases that can not be treated in this way. I was very much pleased at Dr. Kelly's reporting these cases, because I think he now will convert some of our members to this method of vaginal work, just as our efforts to-day and our future efforts will convert him after a while to vaginal work in pus cases and in myomata. He gives as one of his special reasons why this operation is indicated, that it does not disturb the overlying adhesions of the intestines; but that is an argument against vaginal work. The hæmorrhage, of course, is dangerous, but this hæmorrhage can usually be controlled if one knows the correct technique. Just here I wish to say that I believe the same method of treatment *per vaginam*, opening Douglas' pouch, is a very good method in cases of acute hæmorrhage where the patient is suffering so much from shock that a laparotomy would immediately endanger her life. Open Douglas' pouch, go in with your fingers, come to the bleeding points, pull them down, and control the hæmorrhage.

Dr. MANN: I have had a little experience in this line, and I regret to say that it is not the same as Dr. Kelly's. A few weeks ago

I read a paper before the New York Obstetrical Society in which I gave the history of a case which led me to have many doubts as to the advisability of this method of operation. In my clinic at the hospital there were two cases in a short time presenting almost exactly similar features—menstruation, pregnancy, rupture of tubal pregnancy, with a large tumor appearing rather rapidly in the abdomen, completely filling the pelvis and rising above the pelvic brim, presenting behind the uterus as a tumor or pouch. The first one I diagnosed, and opened the abdomen. I found there was a rupture into the broad ligament, and the peritonæum had not been ruptured, but pushed forward until it made a sac that completely filled the pelvis. It was not adherent except by adhesions easily separated. I enucleated the whole mass, tied it off from the broad ligament, removed it, and the patient got well. The second case presented almost exactly similar clinical features, and, having been impressed with the vaginal measures, and thinking this was a good case, as by my two fingers I could see the pouch and could get at it, I thought I would do it by the vagina. I opened it. The woman was in very fair condition, no temperature, and this large mass had formed rather rapidly. I made an incision with the fingers large enough to introduce two fingers. I came on the foetus almost the first thing, delivered that, and pulled out a lot of clots and pieces of placenta. Then came the most frightful hæmorrhage. The blood simply gushed out. I washed out with hot water immediately, but, finding that was not doing much good, I packed and seemed to check the hæmorrhage, with an infused saline solution in the veins to stimulate the patient as much as possible, and she seemed to rally for a short time; but, notwithstanding everything, she died within an hour of the time I made my first incision. A post-mortem examination was made, and I presented the specimen to the Obstetrical Society, and the large, distinct sac was shown completely filling the pelvis, with a thick wall above it. In this cavity was comparatively little gauze—I do not believe I could put enough into it to fill it—and I will mention that the woman had a similar attack a few years before, and on the horn of the uterus on the other side was a tumor as large as a baseball and about as hard, and, on cutting that open, I found clots and another foetus. She had got well without any operation. This is not the only case on record where doctors have had very severe hæmorrhage from this operation. Dr. Coe had a similar experience. In one of the French magazines I

saw one or two cases reported of very serious hæmorrhage. While Dr. Kelly has fully realized the dangers of hæmorrhage, he has not met one yet, and does not know exactly what it is. I shall never, I think, operate on one of those cases again when it is at all recent. Of course, when the hæmatocele has been formed for a considerable time, and suppuration has taken place, it is a different thing, and we can open it by the vagina and get a different result.

Dr. NOBLE: With reference to the recommendation of Dr. Kelly, I find myself very much in the position of Dr. Mann. If the hæmatocele were suppurating, I certainly think the best way to deal with it would be through the vagina. Dr. Kelly's one experience with hæmorrhage, Dr. Mann's second experience, Dr. Coe's third, and the others in the literature, would make me hesitate to deal with one of these things by vaginal incision unless it were quite old, especially as I have operated on at least twenty-five of those cases from above and they all got well. With the uniformity of results from above, with the advantage that if there is disease on the opposite side you can deal with it at the same time, I feel it is distinctly better to operate from above. Certainly a man should be prepared to go in from above if he undertakes it below. If it is suppurating, there is a great advantage in evacuating it through the vagina. I was interested in the very beautiful differentiation Dr. Henrotin made between tubal abortion and primary hæmorrhage into the abdomen. I have operated on five tubal abortions, and the description the doctor gave of primary hæmorrhage applied exactly to the tubal abortions. It sounded very well to hear this differentiation, but in practice my experience does not bear it out. The last case of extra-uterine pregnancy I operated on was a case of tubal abortion where the ovum was still in the tube. That woman had had three attacks, extending over three weeks, although the ovum was still in the tube. In several of the other cases of the five the history was very similar. I think this also is a point against the vaginal operation in these cases unless we propose to go on and take the whole thing out. There we could have washed out the clots and left the ovum and the placenta in the tube, perfectly ready to have a hæmorrhage the next day after we had the operation. The other point I wish to dwell upon is as to operation when we have the abdomen full of blood. I have operated myself under those circumstances a number of times. Three of the cases died, and I am sure they died from the fact, as pointed out by Dr. Hen-

rotin, that I did too nice an operation. If the abdomen is full of free blood, the thing to do is to complete it in the smallest space of time.

Dr. SMITH: My experience has been very small—only five cases of extra-uterine pregnancy—but the results were so gratifying that I would like to mention that those five cases were done by the abdominal method. I would like to say that I am sorry to hear that such a magnificent operator as Dr. Kelly has given up the abdominal route in these cases and is wasting his talent on the vaginal route. The two first cases I ever saw were done by Martin, of Berlin, and I assure you if he had attempted the vaginal route in those cases they would have been dead. When he made the incision through the abdomen it spurted out, and it took ten seconds to get a clamp on the ovarian artery. If he had not done that, two minutes would have been a matter of life and death. We do not want to lose time opening the vagina and fooling around. One of my cases went out of my hospital against my wish in twelve days. Another one left the Western Hospital in fourteen days. Neither of them was any worse for doing so. I will close by saying that, if I were brought a case of extra-uterine pregnancy this afternoon, nothing would give me greater pleasure than to operate by the abdomen, but I would be filled with dismay if called upon to do the simplest case by the vagina.

Dr. BAER: I was very much surprised until I heard part of Dr. Kelly's paper—enough to make me sorry. And I was so pleased when Dr. Henrotin got up that I think the gentlemen got the papers mixed. I know Dr. Kelly's reply will be that these are certain cases that he has referred to, but I am, like Dr. Lapthorne Smith, surprised and sorry to have heard Dr. Kelly leave our camp and go off to the other, while the other champion has come over. Certainly if I were to choose any operation to begin on by the vagina it would not be extra-uterine pregnancy, because the worst surprise that I ever had about hæmorrhage was in extra-uterine pregnancy. I had operated a number of times and had not had much hæmorrhage, and thought it was very simple. Then I got into just such a case as Dr. Kelly did, where he had so much hæmorrhage that he was compelled finally to open the abdomen and ligate. That free blood would not have given me time. The patient would have died while I was getting the abdomen open. The conditions are the same for the operation on extra-uterine pregnancy

as upon other conditions involving the appendages—about the same—and therefore, if the operation from below is the proper one in extra-uterine pregnancy, it would be proper from below in tubal ovarian disease, inflammatory disease, etc. I do not understand why my friend from Baltimore occupies the position he does on extra-uterine pregnancy, and the gentleman from Chicago the other position. It does not seem scientific. It looks as if we came together for a jollification, and our discussions were sandwiched in. I do not think I understood Dr. Henrotin about tubal abortion. Does he mean to say that the symptoms of rupture which are usually ascribed to hæmorrhage are due to tubal abortion without hæmorrhage?

Dr. HENROTIN: Hæmorrhage may be due to either abortion or rupture, and there are usually some discriminating signs which enable us to distinguish them.

Dr. BAER: Is it always proper to operate because the patient has been taken with this shock? In the majority of the cases I have operated on the patients have recovered from the shock. I never saw a case die from extra-uterine pregnancy. In one or two cases the shock was so terrible as to strike the patient down. One patient did not have hæmorrhage at all; ten days afterward we found her in such profound shock that I refused to operate, and coaxed her up gradually, and ten days afterward I operated, having made a diagnosis of extra-uterine pregnancy.

Dr. JANVRIN: It strikes me that Dr. Kelly has not made as much of a change as some of the gentlemen think he has. As I understand it, he limits himself to cases of retro-uterine hæmatocele, and he does not in his paper speak of acute cases of hæmorrhage due to ruptured tube or tubal abortion. That being the case, it seems to me his remarks are absolutely in line with the treatment of pus tubes and other diseased organs which we can remove by the vagina, and, in cases of retro-uterine hæmatocele, it is simply a question of choice for each operator to do whichever operation he thinks himself best conversant with. The paper of Dr. Henrotin has particularly interested me, because for the last ten years I have been looking into this subject somewhat extensively, and have had the happiness of presenting three or four papers before this Society upon the subject itself. I believe the first recognition of a ruptured tube was made by Kiwisch in 1857, and he recommended at that time incision into the abdominal cavity to stop the hæm-

orrhage. In 1867 Dr. Stephen Rogers, of this city, not knowing of the previous recommendation, read a paper recommending exploratory laparotomy in cases of well-marked hæmorrhage, as, for example, cases of internal hæmorrhage from the uterine annexa. The remarks Dr. Henrotin has made put the subject very clearly before us, and are entirely confirmatory of what was recommended in 1857 and 1867 and a great many times since. The case he reported is a beautiful illustration of what can be done when a patient is almost in a moribund condition. I have had quite a number of cases myself, but have never operated when the patient was *in extremis*, as in the case of Dr. Henrotin; but I have operated with perfect success in a number of cases where the hæmorrhage was going on, and with recovery in every case. There is one other point which has not been touched upon, and that is the propriety of an early operation before the rupture of a tube has taken place, but during the early manifestations of a hæmorrhage. I have had three such cases, one of which I reported to this Society some years ago at its meeting in Baltimore, in which there was simply a rupture of an artery upon the surface of the sac, electricity having been used on four occasions during the week preceding, and the foetus supposed to be killed; but on the day following the fourth application of electricity an artery on the surface of the tube broke, and the patient died from an immense hæmorrhage before I could reach her. That opened my eyes to the propriety of an operation during slight hæmorrhage, and prior to an absolute laceration of the tube and collapse on the part of the patient. I have operated on two such cases since that time with perfect success, the last one being in June, 1894, at Yonkers. That case I reported to the Obstetrical Society. In neither of the cases had the tube ruptured, and in neither was there tubal abortion, but arteries covering the tube had been torn asunder and the hæmorrhage was such as to enable me early to recognize the cases as tubal pregnancy.

Dr. GORDON: I believe that I had the honor of making the second successful operation for tubal pregnancy in the United States, Dr. Johnson, of Danville, Ky., having made the first one. At the time I made mine it was supposed I had made the first one. That was made fifteen hours after rupture. The physician in charge of the case told me there was a profound collapse, and he kept her until I could get there. I took out three quarts of blood from the pelvic cavity, and she made a successful recovery. That was in

1887. All the cases I have had since are nine or ten, and in each one of the cases I operated in from two weeks to eight months after the rupture. In the two cases I reported yesterday, as you will remember, the first one was several weeks afterward and the last one two weeks afterward. The last one was hæmorrhage within the tube, and did not rupture through the peritonæum. The second one was at eight months; it was about three months and a half advanced, and everything had become absorbed except the fœtus. My experience, although I would not formulate it as a general rule, justifies me in believing that the doctrine of operating during the collapse is one that is not necessary. It may be tenable, but it seems to me it is like operating upon the brain during a collapse after fracture of the skull. I should wait for the recovery and commence the use of strychnine, and keep my patient up as much as possible. I do not fear women dying from hæmorrhage as much as my friend Dr. Henrotin does.

Dr. ATKINSON: My views upon the section by the vagina for these cases of ectopic gestation with reference to the abdominal route is in favor of the latter. The one thing we desire to do in these cases is to prevent our patient from losing any more blood, and I think you will all bear me out in the statement that by the abdominal route those vessels can be much more quickly clamped than by the vaginal route. If that is the case, we will lose very much less blood by the abdominal than by the vaginal route, because we have directly under our eyes, especially where the Trendelenburg position is employed, the bleeding vessels. In the vaginal route, it is more or less of a muddle until we get the parts irrigated and clamped, and during this procedure not only do we waste a large period of time, but the very fact of throwing hot water into the vagina and *cul-de-sac* will increase the flow of blood, and a large quantity of blood will necessarily be lost under those circumstances before the operation is complete. I am personally opposed to any form of vaginal work that can be done from above. I believe the abdominal route in all cases is preferable to the vaginal. As to a case in point—I did not have the pleasure of hearing Dr. Kelly's paper—but there is an illustrative case in which Dr. Kelly employed the vaginal route. I was called to see a patient in the interior of Pennsylvania, and I refused to operate on account of her condition. She was not in condition, in my judgment, to stand even an anæsthetic. The family were dissatisfied. They sent to

Baltimore for Dr. Kelly, and at the time he saw her she was evidently in better condition, because he decided that she had some chance of her life by an operation. It was done by the vaginal route, and he told me this morning—which also corresponds with a letter I had from her physician—that the patient lost a large quantity of blood at the time of the operation. She never rallied, and, as far as I understand it, died within a few hours. Now, I believe that if that operation had been done from above there might not have been such a loss of blood, and I believe she was in that critical condition that, if the hæmorrhage had been stopped at once, and the blood had not been lost, the chances are she might have had a chance of living, where under the circumstances that chance was taken away.

Dr. ARTHUR W. JOHNSTONE: As I sat here and listened to this discussion, I thought of what was going on nine years ago. Two of the speakers, who have just preceded me, and myself had to carry this whole fight, and we had the first successful cases in the United States. The question we are now debating was debated then. It was the same old story—when to operate, why, and so on. In one of my first cases, the rupture was at four o'clock in the morning. It was operated on by nine. She did not warm up until two the next morning. The way I formulated this thing for myself was about this: There is not the same proportionate danger in the first one or two shocks as there is in the successive ones. When you have had one you can wait, but be sure you do not wait for the second if you can help it. Get your patient warmed up and get in. The second is more dangerous than the first, and the third more dangerous still, and so on, because the vessels have got larger and more pliable, and there is danger of more blood being lost. So my rule is, when there have already been two or three shocks, I doubt whether she is going to get through, and I do the best I can. I never wait beyond the third. It is the old surgical law that we all learned when we were general surgeons—the rule that a man who has had his leg crushed is to wait. No matter if he is not bleeding, if you cut that leg off, he is very apt to die. Never operate in shock if you can avoid it, no matter if there is a loss of blood. The third class of cases spoken of by Dr. Kelly are the same thing we were discussing in Birmingham when we were all students, and it was the class of 1886 which brought this thing to America. Our old master, Tate, was talking about these

very cases, and he then suggested this thing of going through the vagina and peeling them out in this way; but in most of them he said the bleeding was almost too great. I had a case in 1887 of which I am very sorry I can not give you all of the details. When I first saw the case there was a lump about the size of a lemon. I first thought it was a fibroid. After forty-eight hours I saw it again, changed my diagnosis to extra-uterine pregnancy, and urged immediate operation. They wouldn't have it. In three or four weeks they telegraphed me to come and aspirate it. I telegraphed back, "I will not, and don't you either." In spite of that, it was done, and the woman died in an hour. Another thing about the case was that she undoubtedly had puerperal eclampsia, all the wanderings and convulsions, and everything.

Dr. WATKINS: I would like to speak of eleven cases, some of which favor decidedly the vaginal route. In eight of these cases the vaginal-route operation was employed, and in six of them I think the abdominal route would have resulted in death or in a very lingering convalescence. In two of the cases the vaginal route would not have been the favorable one, because in one the tube had ruptured into the broad ligament; there had been a perforation through the posterior surface of the broad ligament, which was bleeding during the operation, and the bleeding of which would have been controlled with great difficulty had the vaginal route been employed. In another one the placenta was attached on the fundus of the uterus; that also would have been an unfavorable case for vaginal operation. In two of the cases treated by vaginal operation there was an abdominal tubal abortion. The tube was rolled out to a posterior cervical position and removed, the patient only remaining in bed one week, leaving the hospital at the end of two weeks, and remaining perfectly well. In six cases of large hæmatoma, such as were described by Dr. Kelly, five were operated upon through the vagina, three of whom had been invaded (or infected—J. H. B.) by curettage. In one of the cases I opened the abdomen and found it inadvisable to complete the operation by this method. The vaginal incision was made, the clots removed, and drainage employed. All the cases recovered. In one of the cases a large tube was found at the top of the hæmatoma, which was perforated by the finger, seven drachms of placental tissue removed, and the patient made a satisfactory recovery. I am certain that in this case the abdominal operation would have resulted in death,

because the patient was in a very much exhausted condition and was septic.

Dr. CURRIER: The question of pathology in this subject we will leave out. There are three points that want to be considered: First, the question of operation during collapse; second, differential diagnosis; third, the method of operating. As regards the first point, I think that most of you who have had much experience in this matter will bear me out that this is largely a matter of personal equation. There are some people who, like Dr. Henrotin's case, will bear an operation and survive it; but the majority of cases, it seems to me, if operated upon in collapse will die, and therefore it seems to me that the safe rule is to temporize and wait until there is some rallying, and then operate. As to the second point (differential diagnosis), it makes very little difference as to what the diagnosis is. If we have a case of shock, we suspect hæmorrhage, and it matters little whether the case is one of ectopic gestation or one, we will say, of ruptured ovarian cyst, which we sometimes have. The symptoms are the same and the previous symptoms may be the same too. As to that, I think we may properly say that, given a case of collapse and a probable condition of tubal gestation, the indications are, after the shock has subsided, to operate. As to the third question (the method of operating), I do not believe in giving up a method which I consider tolerably sure for one which I consider very difficult and obscure; and, from the recitation of cases we have had to-day—Dr. Mann's and others—it seems to me that it would be unwise, unsurgical, and improper for us to attempt to relieve the present needs and imminent distress in a case of this kind by the vaginal method. Therefore, for me, in cases of that kind, the course of treatment would be, first, to wait until the collapse had passed; second, determine the diagnosis; and, third, to operate by the abdominal method.

Dr. J. T. JOHNSON: It seems to me unwise and unsurgical to attempt to restore a patient from a condition of collapse which is being produced while the loss of blood is going on. The very means we use in stimulation—external and internal—are the means which will keep the hæmorrhage going on, and the way to cure that patient is to cut down and tie the bleeding vessels instead of waiting for the shock to go over. There have been many cases of death reported by coroners' physicians and others produced by ruptured tubal pregnancies. While the physicians were waiting

for the shock to go by, and seeking a time for operation after the shock had passed, the patients died. So I think some lives would be saved by cutting down and tying the bleeding vessels.

Dr. BAER: I would like to ask a question for the benefit of humanity. It has been stated that it is dangerous to operate during shock; that the women will often die, which I believe; and it is stated by the last speaker that it is proper to cut down while she is bleeding and tie the vessel. That last statement is alluring, and he has given in support of that the report from the coroner's physician of Philadelphia that twenty-seven cases had died of hæmorrhage from extra-uterine pregnancy. I have thought of that a good deal since the statement was made years ago, and I have made a statement that I never saw a case of extra-uterine pregnancy die from hæmorrhage. This is a very important question, because the lives of our wives and daughters depend on it. I would like to ask the gentlemen present whether the coroners' physicians in other cities have made the same report as the coroner's physician of Philadelphia.

Dr. KELLY (in closing): You all know the classical case of the English actress who dropped dead at the Paris *café*, and it was supposed she was poisoned, but it was found that she died of an extra-uterine pregnancy. I have always felt doubts as to the number of those cases to which Dr. Baer refers. It does not seem to me to be sufficiently well substantiated. Still, the Society will go on, and opinions will come around to this view. There is one man in this room who understands my position, and that is the President himself. It is possible for the utmost conservative to be very radical on occasion. Dr. Janvrin defined the class of cases to which I referred, and I will not speak of the other class. I was speaking of one particular species of the genus extra-uterine pregnancy, and that the one which we clinically meet most frequently. It has also been very correctly said that it is nothing but the old subject of intrapelvic hæmatocele brought up again under a new name, and the same may be said of pelvic abscess and pyosalpinx. All our scientific work has been but to precisely define where we stand in regard to these older things, where we did not know the exact nature of the thing, and then to treat it in a better way, knowing better our conditions. And if the New York members will go back to their discussion ten to fifteen years ago they will find that a lively war was waged on the treatment of pelvic hæmatocele

by Dr. Thomas, of this city, in the same way exactly. As regards the danger of hæmorrhage, I will say to Dr. Mann that he did wrong when that case was bleeding not to open up the abdomen at once. I will simply read a few lines from the last page of my article: "On account of the possibility of this accident, I insist that the operator should always be prepared to open the abdomen if necessary when he undertakes to evacuate the sac by a vaginal opening." I have here the full history of the case of death to which Dr. Atkinson referred. On the sixth day she died, not a few hours after the operation. When I see a case I agree with Dr. Henrotin to operate at once, as promptly as possible. Make efforts to stimulate the patient. Elevate the foot of the bed; infuse saline solution under the breasts; give as a stimulant rectal injections of carbonated ammonia and brandy, with saline solution; open the abdomen; run your hand down into the pelvis; run in clamps; clamp the horn of the uterus; get out the clots; get out the sac; tie the big arteries. In that way I saved a patient last week who seemed dead on the table at the time. I flooded her with salt solution. Patients will stand it if they only get volume in their circulation. They die from lack of volume for the heart to contract on. If the patient was in a condition of jactation, and appeared to be dying, I would stimulate actively and wait a little to see if I got her in condition to treat.

Dr. HENROTIN (in closing): Part of my paper not read will please Dr. Baer. It states: "Baldy, of Philadelphia, in an article before the American Gynecological Society in 1890, based on reports of the coroners of Philadelphia, intimated that fifteen hundred women had lost their lives on account of undiagnosed extra-uterine pregnancy." The deaths undoubtedly are very numerous. A great many cases die undiagnosed. These vaginal operators will do a great deal of mischief yet. If there is any one thing which I think, generally speaking, should never be operated on by the vagina, it is extra-uterine pregnancy. Of course, when an extra-uterine pregnancy goes beyond a certain point, and becomes a septic mass imbedded in the pelvis, it is not an extra-uterine pregnancy any more. By extra-uterine pregnancy I mean the active cases. Take a case that has got beyond the active process—that is, a hæmatocele of a certain age—there is no particular danger of hæmorrhage; if down below, go at it through the vagina; if above, get at it through the abdomen. It takes fine judgment to discriminate between an active

case, liable to bleed, and one that is not. If we have doubts, we should open the abdomen and see exactly what we do, because a large portion of the hæmorrhage is liable to come from above from the ovarian artery. Martin reports fifty-eight cases operated upon vaginally; he says he is through operating vaginally in cases that have the least element of activity in them, and he considers the abdominal operation for extra-uterine pregnancy, generally speaking, outside of the thoroughly septic cases, to be the proper one. I say, operate during the shock. I am not only a gynæcologist, but have been for sixteen years the surgeon for a hospital for men only, and have done a great many operations. It means something when I say that there are three hundred beds in it. I have got beyond waiting for shock. I am not going to operate on a patient who is tossing about in a restlessness that means impending death. But I operate in shock, and always expect to. Now, as regards the point made by Dr. Noble in regard to shock, I am only trying to find a way, as you all are, out of difficulties. I am only trying to save life, and pointing out certain little facts that I think are of importance and value, and it is the fine discrimination of points in these cases where success comes in. I believe that there is possible some little discrimination—if not in all cases, in some—between cases that are probably due to an abortion and cases that are probably due to rupture; but if I have a rupture absolutely, I must operate at once; to wait for a rally to take place is to me improper surgery. It is to be remembered that the shorter the time between the beginning of the attack and profound collapse, the more urgent the necessity for immediate action. I firmly believe there is a discrimination to be made between the woman who flushes up when you hold her head down a little bit, whose pulse goes up and down, and gets a little stronger, and the cold stare of the corpselike patient who has no blood in her veins, who is perfectly conscious, and lies there in the greatest fear. Those are the cases of complete collapse, and if you wait for those to get well, my belief is that they will not.

SUSPENSIO UTERI WITH REFERENCE TO ITS INFLUENCE UPON PREGNANCY AND LABOR.

BY CHARLES P. NOBLE, M. D., PHILADELPHIA.

(Author's Abstract.)

Dr. Noble considers that, from a gynecological standpoint, suspensio uteri has proved an eminently satisfactory operation; but this is not the case from the obstetrical standpoint. In a small percentage of cases difficulties more or less serious have been met with in pregnancy or labor as the result of this operation. Dr. Noble reports two cases in which in the one serious, and in the other absolute obstruction to labor resulted from the imprisonment of the fundus and anterior uterine wall below the point of abdominal suture. This mass of tissue, hypertrophied by pregnancy, constituted a tumor obstructing the inlet of the pelvis. In one case it was possible to deliver by cephalic version and the high application of the forceps, and in the other the Porro operation was necessary. A collective investigation of American cases has resulted in the collection of fifty-six cases of pregnancy following eight hundred and eight operations. Of the fifty-six cases, seven remain undelivered. There have been six abortions, two of which occurred in the same woman; one was criminal, showing that the operation has little or no tendency to induce abortion. Forty-three women have been delivered at full term or shortly before it. There have been four deaths. One followed a Porro operation, one died of heart disease before labor, one was septic before labor, and one died after an operation to effect delivery of a character undescribed. In two of these cases the operation proved to have nothing to do with the death, and therefore we may consider that there have been two deaths attributable to the operation, which would make a mortality in labor of about four per cent.

The complications in labor have been as follows: Forceps delivery, 3; Porro operation, 1; retained placenta, 2; operative delivery, 1; septic before labor, 1; heart disease (died before labor), 1; uncontrollable vomiting (labor induced), 1.

Similar statistics have been collected from foreign sources, although, on the whole, the complications were more numerous

among the sixty cases of labor collected from French and German sources. It is evident that the real danger to be feared as a result of this operation is that the fundus and anterior wall of the uterus may become imprisoned below the point of suture to the abdominal wall, and thus be prevented from developing in the course of pregnancy. This entails two serious consequences. The first is that the posterior wall of the uterus must afford the necessary room, by its exaggerated development and overstretching, to accommodate the growing ovum; and the second is that the hypertrophied fundus and anterior wall of the uterus, being imprisoned below the point of attachment to the anterior abdominal wall, may constitute a tumor blocking up the inlet of the pelvis.

Dr. Noble is of the opinion that this danger is not inherent in the operation, but is due to the technique employed. After discussing the methods of Kelly, Olshausen, and Leopold, he recommends that Kelly's method of suture be adopted, but that the anterior instead of the posterior face of the fundus be attached to the abdominal wall. In case of pregnancy this leaves the fundus, as well as the posterior and lateral uterine walls, free to develop, besides gaining the greater degree of mobility which is secured by Kelly's method. Importance is placed upon the necessity of closing the peritonæum, the aponeurotic and muscular layer, and the skin by separate rows of sutures, and special stress is placed upon the necessity of leaving the peritonæum free from the muscular layer.

The status of Alexander's operation and vaginal fixation is then treated of as follows:

"Alexander's operation, or shortening the round ligaments, has had a more extensive trial than suspensio uteri, and therefore we are in a good position to estimate the value of this procedure. Those who have had most experience with the operation are unanimous in their advocacy of it in suitable cases—that is, for retro-displacements or prolapse of the uterus without adhesions. No one with experience denies that the operation is feasible in almost every case, and that the results obtained by it are permanent. There is no evidence that the operation interferes in any way with pregnancy or labor, aside from some slight discomfort in the latter months of pregnancy. The only objection which can be urged against the operation is that, in a small percentage of cases, the ligaments are anomalous, and that a certain number of hernias

have followed its performance. The skill of the individual operator will reduce these supposed disadvantages to a minimum.

" Vaginal fixation, after the methods of Dührssen and Mackenrodt, has had a much shorter trial; but, viewed from the obstetrical standpoint, the results have been so disastrous that the operation has been formally abandoned by its originators. Over one fourth of the pregnancies following this operation have ended in abortions, and the recent literature is burdened with reports of versions, artificial extractions, forceps operations, craniotomies, and Porro operations, necessitated by vaginal fixation, so I feel that, following its originators, we must consider it as condemned by its results, and as an unjustifiable operation in the case of women of childbearing age.

" There has recently been an attempt to broaden the field of Alexander's operation by extending it to cases of retrodisplacements of the uterus with adhesions. It is proposed in such cases to break up the adhesions through an incision into the peritonæum made through the vagina, either behind or in front of the cervix, or to break up the adhesions through an incision in the abdominal wall, and then to shorten the round ligaments. Every proposed operation must be judged by its results, but, unless these shall become convincing, I prefer *suspensio uteri* in this class of cases.

" I would offer the following conclusions as legitimate deductions from the evidence presented in this paper:

" 1. *Suspensio uteri* has been followed by disturbances during pregnancy and difficulties in labor in a small percentage of cases. Serious difficulties in labor depend upon the fixation of the fundus and anterior uterine wall to the abdominal wall, so that only the posterior and lateral walls of the uterus are left free to develop during pregnancy. As a consequence of this condition, *inertia uteri* is present during labor in certain cases, and in a smaller number the imprisoned fundus and anterior uterine wall, hypertrophied by pregnancy, constitute a tumor obstructing the inlet of the pelvis. Obstruction to delivery from this cause may be absolute, and necessitate Cæsarean section. This unfortunate condition is best avoided by aiming at the production of slight instead of firm adhesions between the uterus and the abdominal wall, and by making the attachment to the uterus on the anterior instead of the posterior face of the fundus.

" 2. Alexander's operation, or shortening of the round ligaments,

is to be preferred to suspensio uteri in cases of uncomplicated retro-displacements of the uterus. This preference is based upon the ground that the position of the uterus obtained by this operation is more nearly normal than that secured by suspensio uteri, and that the risks to the patient in case of pregnancy are distinctly less.

"Retrodisplacements of the uterus, complicated by adhesions or by greater or less disease of the uterine appendages, should be treated, in my opinion, by abdominal section, properly dealing with the complications, and suspensio uteri. The difficulties which have been met with in pregnancy heretofore will serve as a guide for future work, and the experience already gained should greatly lessen the percentage of difficulties in labor in the future. It is my own intention to apply the principles already dwelt upon in future cases, and to continue to do the operation in all cases in which it becomes necessary to open the abdomen for conditions other than displacement of the uterus, unless further experience shall demonstrate that the dangers of the operation are inherent and not due to technique.

"I would offer a suggestion, which I believe to be important, that all women who become pregnant after having had the operation of suspensio uteri, or ventral fixation, should be examined during the seventh and eighth months of pregnancy to ascertain whether or not the cervix is being dragged up out of the pelvis, and also whether or not the anterior wall of the uterus constitutes a tumor at the brim of the pelvis. In case either of these conditions is made out, labor should be induced at least four weeks before full time. This procedure should greatly minimize the risk of complete obstruction to labor, and should make the necessity for Cæsarean section extremely rare."

Discussion postponed until to-morrow morning.

Adjourned.

THIRD DAY.

Thursday, May 28th.

Morning Session at 10 A. M.

The President in the Chair.

DISCUSSION ON THE PAPER OF DR. NOBLE.

Dr. THOMAS ADDIS EMMET: In a general way I preface my remarks in reference to abdominal fixation, and with it the use of Alexander's operation, by saying that the first has a very limited field in my experience, and if my views are correct Alexander's operation has no place at all. There are certain mechanical principles underlying almost all surgical work, which must be appreciated by the operator and applied; if that necessity is not appreciated his work becomes merely empirical. In the course of my experience I have worked out certain principles applicable to displacements of the uterus and operations for the relief of these, and I will in a few words state them. When a woman is in a state of health her uterus occupies a position in the pelvis where just as much blood can get out of it as gets into it, and this equation buoys the uterus in that position. But as no two women are made exactly alike, this "plane" of normal circulation differs in all women and is peculiar to each. This principle is as applicable to the proper fitting of a pessary as in an operation to relieve that displacement. I have often said that many men could fit a pessary that might do no harm, but few could fit one that would do good, simply because they do not understand that principle. We must recollect that the vessels in the pelvis have no valves, that gravity is overcome and the circulation maintained only by the tortuous course of those vessels, and that, when the uterus is in a normal condition, the vessels are bent upon themselves in such a manner that the circulation is maintained and the uterus kept in its anatomico-physiological plane. Just in proportion as the uterus becomes displaced will these vessels straighten out, and just in proportion as the veins straighten out and the arteries, being not obstructed, become enlarged, will the pathological condition and the prolapse be increased. That goes on until the prolapse reaches the mouth of the

vagina. When the uterus reaches that point the arteries begin to be dragged upon, their caliber becomes diminished and their circulation lessened; that is the reason why the uterus often becomes *atrophied* in complete procidentia. So long as the uterus merely lies upon the floor of the pelvis, with the straightening out of its veins the organ becomes enlarged.

Applying this principle we can readily see that it is but guess-work when raising the uterus to fix it to the abdominal wall to expect to obtain exactly the plane of health I have described because, just in proportion as the uterus is raised above whatever the health line be in a particular patient, just so much must you produce the same symptoms as would occur if the uterus was prolapsed. While I have no doubt that there are cases benefited by the operation, because I have too much respect for many men who advocate the operation not to believe that they are truthful observers and that they do get good success in some cases, nevertheless I am convinced that the operator who does not appreciate the physiological conditions can do no good and is as a rule liable to do harm. In reference to Alexander's operation—which is not spoken of in the paper though the bearing is the same—I saw Alexander operate very soon after he had begun. He was exceedingly civil and kind to me and I saw him operate a number of times. He allowed me to put my finger into the vagina while he was removing the uterus, and I recognized the fact that as soon as the uterus began to be dragged forward it really became *prolapsed* in the pelvis. Now, on that same principle I have held for years that it is not the degree of version in the uterus that does the harm, but it is the degree of prolapse. And as we draw the uterus over in Alexander's operation one moment's reflection upon the attachment of the round ligament, which is inserted at a higher plane in the uterus than it is in the pubes, will show that it is utterly impossible to avoid drawing the uterus down into the pelvis just in proportion as you antevert it. Recognizing this fact, I have never done the operation, because I could see it had no place. It is the degree of vertical displacement and not the version, which makes the trouble. Take a case of extreme anteversion, where the woman has suffered from bearing down and other symptoms of prolapse. We all know that that woman can be relieved by anteverting the uterus even more, by putting a pessary in with a bigger curve that will raise that uterus to the position at which circulation will be restored. I often

retroverted the uterus and relieved her by raising it to a point where the circulation was restored. I am opposed to these operations—not but what they can be done skillfully and may do comparatively little harm even if they do no good—but I obtained my experience at a time when plastic work was better understood in this country and respected the world over, and I learned at that time to cure all these cases by local treatment, mechanical appliances, and plastic surgery. I have yet to see the first case that I can not relieve. I am opposed to Alexander's operation and to opening the abdomen for the different methods of fixation because, although probably I have opened the abdomen as often as any one within hearing of my voice, I never do it without the fullest appreciation of the responsibility I am assuming, and anything that can be done to avoid an unnecessary laparotomy should be well weighed and reflected upon.

Dr. EDEBOHLS: The time has come when these various operations for retrodisplacements or displacements in general of the uterus are to be tested, not by their immediate anatomical and therapeutical result, but from the higher standpoint of their influence on future pregnancies and childbirth. Briefly reviewed, the Alexander operation has been found to have no deleterious influence of any kind whatsoever, with the exception of a little pain, which has been noticed in a few cases, from future pregnancy and childbirth. The operation of vaginal fixation stands condemned by its record of trouble following pregnancy and labor in this operation. The operation of ventrofixation of the uterus occupies an intermediate plane. Quite a number of disasters have been reported—not so numerous in proportion as those following vaginal fixation, but still sufficient to make us hesitate and consider whether the operation is one that we should apply with light heart in women of the childbearing period. Dr. Noble has collected all the statistics that are probably available just now, both in Europe and in this country. I saw yesterday a report of an additional disaster, following an operation for ventrofixation, which he has not recorded. Some little errors crept into Dr. Noble's report in regard to my cases. I have had eight pregnancies and deliveries following ventrofixation of the uterus, and two of these cases died, but neither of them died as the result of previous fixation. One died of heart disease on the eve of delivery, before labor, and the second died from retention of a esptic foetus for six weeks. Those cases Dr.

Noble has duplicated. Now, with the list of disasters that we have in pregnancy and labor following ventrofixation of the uterus, I believe that we should only do this operation when nothing else will suffice to cure our patient. If we have any other means of curing her, let us use that means. Let us cure her, as Dr. Emmet claims he has cured all his patients, if we can. If we can not, let us resort to another operation, shortening the round ligaments, if it will answer the purpose, and it will in most of the cases, which has no influence on future pregnancies and labor. That will narrow the field of ventrofixation to a very small one in women of the childbearing period. After that period is over, or when both tubes and ovaries are removed, I see no serious objection to the operation of ventrofixation. As to the operation, on the one hand the best method of securing permanent anatomical results is by fastening the uterus securely to the anterior abdominal wall and by attaching it on its posterior surface. The lower you attach it within reasonable limits, and the firmer you fix it, the better your anatomical and therapeutical results. But if also you fix it posteriorly, the more securely you fix it the worse will be the prognosis in case of future pregnancy and labor, whereas, by attaching the anterior face of the uterus to the anterior abdominal wall, you have a favorable influence upon future pregnancies, and no or very little interference; but the immediate anatomical and therapeutical results are apt to be impaired by the uterus being again forced away by the pressure of the intestines. Consequently, I suppose that a safe middle ground should be held in these cases, and that probably the best way is to attach the uterus squarely by the fundus by the portion that lies between the origin of the two tubes and the anterior wall. And also to adopt this principle—not to select any one point of the abdominal wall invariably, but in doing the operation to bring the uterus up in a natural way against the wall and fasten it where it will naturally rest if you hold it in position, without bending and pulling too much on the lower attachments.

Dr. KELLY: I feel deeply interested in this subject, in that I did the first deliberate operation ever done, and I thank Dr. Noble for giving me the credit in this matter of priority. I have followed the operation very closely since that time. The indications for the operation—as I wrote in a paper in the *Journal of the American Medical Association* in December—"The existence of a retroflexion which can not be corrected or whose symptoms can not be relieved

by non-operative treatment." The important query from the very first, and the question every one asked, was, What is the effect it is going to have on pregnancy? I am glad that Dr. Noble has taken this up in his careful, analytical, scientific manner. It has been pretty well threshed over on the other side of the water, but with our different methods of treatment it ought to be handled carefully on this side, with the prospect of some different, and possibly better, results. I have sent letters to one hundred and twenty-five cases recently, in order to put some facts in Dr. Noble's hands, and I will hand to the secretary a brief abstract of the replies received. I heard from seventy-six of them. Forty-eight were married and twenty-eight single. Out of the forty-eight married women we had thirteen cases of pregnancy. In but one of those cases has there been anything like a difficult labor to report or anything abnormal. That one case was one of my first cases, where the uterus was suspended (?) by the utero-ovarian ligaments, and there was extensive suppuration afterward. This is not the case in any of the others. The adhesion is a long, light, delicate, fibrous band. The uterus pulls away from the abdominal wall until it lies in an absolutely easy position, and it is not a ventrofixation but a suspension. It is easily hung in a natural position. The only thing you can not do with it is to throw it back into retroversion. It has all the movements of a normal uterus. Two cases are at present at full term in my hospital. There is nothing abnormal in the position of the cervix or anterior of the uterus. I would urge that we must discriminate in regard to the kind of operation. There are a vast number of operations called by this same name, and some of them aim at an extensive adhesion between the fundus and anterior abdominal wall. In those cases it is but reasonable to expect that the uterus will remain fixed during pregnancy, and that the anterior wall will be prevented from thinning out, from distending, and remain as a mass which obstructs labor. I would insist that the proper method of treatment is the one I have successfully carried out in upward of two hundred and fifty cases. I reported two hundred in this paper last December, and since then there have been fifty others, I am sure, with about two per cent. of relapses. The method is simply to use a little silk suture inside the peritonæum through the uterus, through the other side, and then tie and drop. Two little sutures posterior to the ridge at the top of the fundus; these throw the uterus into light antelexion. It is not

right to say that the lower you fix posteriorly, the firmer and the worse for the patient, because in these cases I fixated posteriorly enough to bring the uterus forward, and it was not necessary to fixate firmly, because I have opened the abdomen a number of times and found this to be true. It was not a firm fixation, and yet the patients did well; thirteen cases became pregnant, and out of the thirteen but one has had trouble, which was readily explained by the character of the convalescence of the patient and the adhesions.

Dr. LAPHORNE SMITH: I have performed this operation at Dr. Kelly's suggestion over fifty times, and wish briefly to state my experience so far. Only in one case has any trouble followed the operation owing to pregnancy, and in that case the woman aborted at the fifth month. That is absolutely the only untoward result. I have had only one failure, and I had a good opportunity in that case of seeing how things turned out. I reopened the abdomen a year later for ventral hernia, and there I found the uterus lying back in the hollow of the sacrum, with a cord about the thickness of a penholder running from the place on the abdominal wall where I had attached the uterus, back to the anterior surface of the fundus, showing that these adhesions are not strong enough alone to hold the uterus in position. In this case the uterus was rather a heavy one. When I began I was satisfied with putting a silkworm-gut suture through the abdominal wall, through the uterus, and out through the abdominal wall again, two of these sutures passing through the anterior wall of the uterus. It was in one of these cases that the relapse occurred. After that I began to leave two buried silk sutures. I have only had two cases in which these buried sutures have given any trouble, and in those I had to fish out the sutures because they were keeping up a little suppuration. I think that Dr. Kelly's suggestion of taking in less of the abdominal wall will perhaps avoid any such trouble. A very fine suture is sufficient; it is not well to use too coarse a suture. I not only sterilize these silk threads, but I soak them in a saturated solution of iodoform in ether, which makes them still less liable to become septic, and it is partly to that that I attribute the fact of so many of these sutures remaining there and giving no trouble. The operation has been exceedingly satisfactory in the ultimate results. I have seen many of these women constantly, and they are feeling perfectly well and are perfectly satisfied with the

operation. In a few of the cases I left the ovaries and tubes, but, as Dr. Kelly says, this operation is only indicated in those cases in which an Alexander operation can not be performed. I do not think it is right to open the abdomen when we can bring that uterus up by an Alexander operation. Therefore, the cases I have done ventrofixation for were those in which there was extensive disease of the tubes and ovaries, and the very difficult adhesions, and it was after tearing out the ovaries and tubes, and tearing the uterus away from the adhesions, that I performed ventrofixation. Some of these women who were suffering for years have had no trouble since. That is a very important point. The uterus, when it gets up to its proper place, and the ovaries and tubes in their proper places, regain their healthy condition, the circulation improves, and I have been astonished myself by the results. I have left ovaries and tubes against my will because the women insisted upon it, and to my surprise several have done wonderfully well. So that I am very much in favor of this operation, but only in cases in which the Alexander operation can not be done.

Dr. ASHTON (of Philadelphia): I was very much interested and delighted to hear Dr. Kelly's remarks on this subject, and think he has really struck the keynote. The statistics on this operation, as to the results, are absolutely valueless, for the simple reason that there are so many different methods. If we make an absolute ventrofixation, as is made by a large number of the operators—an operation which consists in a number of instances in going from one cornu of the uterus to the other—the result is that we have firm adhesions between the fundus of the uterus and the abdominal wall. Those cases must necessarily have trouble when they become pregnant or get into labor. The object of the operation, when properly performed, is not only to suspend the uterus, but to keep it somewhat tilted forward, and that can only be done by taking advantage of the peritoneal attachment of the adhesions. I have operated on a number of these cases, and have had the opportunity of doing a secondary operation upon two, both for ovarian troubles, one developing cyst of the ovary. I had an opportunity of seeing both these ligaments that I had made. In both cases they were two inches—or a little over—long; they were slender ligaments, and the adhesions were spread over the fundus of the uterus and the peritonæum. The pelvis was perfectly free. I do not agree with Dr. Emmet that if we simply open the abdomen and do nothing

else, under our modern method, we will necessarily have adhesions. It is rare that I have adhesions following my work, unless it is a case where adhesions have already existed. Now, if these ligatures are carried through the muscular tissue and tied and buried there, or carried over the fascia and tied and buried there, we will have a permanent fixation of the uterus against the abdominal wall; and it is only where we simply attach the fundus and run the ligatures through the peritonæum that we get this long ligature. Dr. Emmet speaks of curing all these cases by plastic work and by pessary. I personally have never seen a chronic displacement of the uterus cured by a pessary, and the reason of it is because of the fact that the ligaments have all undergone fatty degeneration as the result of the overstretching. I know of no plastic work that will cure these cases. They come to us suffering from exacting subjective symptoms, and, if we have not an operation like ventrofixation to do for these women, I would like to hear from some of the members of this Society what we are to do with them.

Dr. FRY: Since I received Dr. Noble's letter investigating this subject a case has come to my knowledge which I would like to mention. A young woman came to Washington from Virginia for epilepsy. She had had a ventrofixation done in Baltimore—I presume, by Dr. Kelly—and she was then about five or six months pregnant. I do not know whether the abdomen was opened, but the interesting point is that she was pregnant five or six months; the fixation had been performed on her when she was about a month pregnant, and the operation did not in any way interfere with the progress of the gestation. I wrote to the physician who delivered her, asking the character of her labor, and received a letter from him saying that the labor was in no respect unusual—a living child weighing five or six pounds was born after three or four hours' labor. I asked particularly in my letter whether he noticed this imprisoned muscle on the interior surface between the point of fixation and the internal os, and he states it was not noticed. If any woman should have had an abortion or a miscarriage this woman ought. I have seen her several times, in these epileptic attacks, fall out of the bed to the floor, and she continued to have these attacks—six or eight a day—during the pregnancy, and still she went on to the full period of gestation. Showing how little effect the operation has on pregnancy, I had occasion to do a ventrofixation on a woman ten weeks pregnant. That is two weeks ago,

and there has been no trouble so far. I had occasion in that operation to fasten the uterus on the abdominal surface. The uterus being enlarged, I could do it very easily, and, having in view the difficulty which has been shown to follow from attaching it so far back, I fastened it upon the anterior surface, although in all my other operations I have followed the doctor's steps very carefully in using the posterior surface of the fundus. I think in this chaotic condition of the statistics that, besides the technique, which of course is very important, as has been shown in this discussion, another factor which we ought to consider is the interval which elapses between the time the ventrofixation is done and the labor. One of the strongest advocates of Alexander's operation, in speaking of the effect of pregnancy and labor after that operation, states that he always cautions his patients if possible to avoid pregnancy within a year after the operation. When Dr. Kelly did this first the title of it was ventrofixation of the uterus, but he subsequently changed that to suspension of the uterus, from the fact that after the lapse of a certain time the uterus was not fixed closely against the abdominal wall, but suspended by the formation of this ligament; and I believe the result would be better if enough time has elapsed after the operation to allow of the formation of this ligament, so that the uterus would be movable and there would be less interference with the labor subsequently.

Dr. NOBLE (in closing): We are all familiar with Dr. Emmet's views, and all respect the work he has done, but certainly most of us are unable to cure adherent retroversions by plastic operations. With reference to Dr. Edebohls' remarks, I would take some exception to what he said, particularly that the farther back you went, and the more firmly you fixed the uterus against the abdominal wall, the better the anatomical and therapeutic result. I would not agree with that statement, particularly the point as to how firmly the uterus is fixed. There is no doubt that the uterus is not a fixed organ anatomically, and therefore any operation which fixes it does not give you a proper anatomical result. The very fact that it is fixed is in so much not anatomical and not normal. I think the term "fixation" has been the bane of the operation. I pointed that out in the paper, and I think the sooner we cease to think of the operation as a fixation of the uterus the sooner the time will come when we will point to better results. For that reason I like the term "suspension" better, or hysterorrhaphy, which does not define the

operation as well as it might. The other remarks of Dr. Edebohls I agree with largely. There is no doubt that if we go in front of the uterus we do get a result which is not as likely to be permanent as though the sutures were put in slightly behind the fundus. As to the alternative operations, my personal feeling would be that if for any reason it would be necessary to abandon this operation, I should very much prefer to try the operation proposed by Dr. Mann in cases in which we had adhesions or diseased appendages than to break up those adhesions through the vagina and then do an Alexander's operation. Dr. Smith states that the majority of his cases have been done when the ovaries and tubes were removed. While that is not strictly *apropos*, I see no reason myself for doing the operation under those circumstances. I think he had better take the uterus out. If the ovaries and tubes are out, why should he leave a somewhat diseased uterus hung up by the abdominal wall?

(To be continued.)

TRANSACTIONS OF THE CHICAGO GYNÆCOLOGICAL SOCIETY.

Stated Meeting, May 15, 1896.

The *President*, E. C. DUDLEY, M. D., in the Chair.

Unique Case of Appendicitis.

Dr. J. T. BINKLEY: I desire to report briefly a very interesting case. In July of last year I operated on a man for appendicitis, and found an abscess which had to be drained. An extensive hernia followed the operation. I was unable to locate the appendix. Some three or four days ago I operated for hernia, and, upon incising the thin, stretched tissue which formed the sac, I found, immediately under it, an appendix almost normal in appearance, except that the lower end of it had been perforated and was attached to the thin membrane through which I cut. Undoubtedly this was the portion of the appendix that was pathological to begin with. It was a very unique case.

Intra-uterine Stem Pessary.

Dr. H. P. NEWMAN: I have devised this instrument for cervical stenosis, flexions, and resulting sterility. It is a silver-wire coil which has an olive-shaped tip and a small flange at its base to facilitate introduction and to secure fixation.

These are some of its advantages: It comes in graded sizes, and is easily modified for individual requirements. A pair of ordinary dressing forceps will change the spiral direction in any way desired, elongating or contracting it, making it smaller or larger.

The instrument is intended to project just through the internal os. It is easily placed and removed, requiring no especially devised instrument for its introduction, as does the Outerbridge pessary.

Grasped with a simple pair of dressing forceps, it is easily inserted by rotating it, and it is removed by reversing the rotation. The spiral convolution prevents any danger of spontaneous expulsion.

The subject of ectopic gestation was continued from the April meeting.

Vaginal Section for Extra-uterine Pregnancy.

BY FERNAND HENROTIN. M. D.

(See page 151.)

DISCUSSION of the papers of Drs. C. S. Bacon, W. H. Rumpf, C. N. Smith, read at the last meeting, and of the paper of F. Henrotin.

Dr. E. C. DUDLEY: I desire to raise the question whether the abdominal operation for extra-uterine pregnancy might not follow the same general principles which have been described in the evolution of the operation of hysterectomy—that is, first shut off the blood currents and then make a practically bloodless operation. My suggestion is not intended for universal application, but there might be many cases in which the uterine arteries could be secured through the vagina, as in uterine myomata. These arteries having been ligated, the abdomen might be opened and the infundibulopelvic ligaments ligated on either side. This would cut off the blood current, and in such cases as these four ligatures may be pos-

sible, any desired operation might be performed, and it would be a practically bloodless operation.

Dr. FENGER: I think that would be a very difficult plan in many cases; it would be almost impossible to find the uterine artery through the vagina.

Dr. DUDLEY: They are often found in cases of fibroma without much difficulty.

Dr. FENGER: Yes, but an extra-uterine pregnancy is different.

Dr. HENROTIN: I would ask Dr. Fenger if the hæmorrhage from that class of cases is not to a very great extent from the large veins, and not so much from the arteries. In these cases immense bunches of veins on both sides come from all quarters, and are extremely difficult to get at. I saw a case of Dr. Bacon's—an ovarian cyst in a seven months' pregnancy—and there was a bunch of veins as large as a fist on both sides, each vein as large as a finger.

Dr. DUDLEY: Of course, if the arteries are shut off, there will be no blood in the veins. I think that it will be found that they are probably all in connection with these four arteries, the same as in fibroids or other conditions.

Dr. CHRISTIAN FENGER: I listened with a great deal of interest to the scholarly papers of Drs. Rumpf and Bacon upon the pathology and ætiology respectively of extra-uterine pregnancy, which showed careful study of the literature of the subject up to the present day, and to the interesting case reported by Dr. Henrotin, which was especially illustrative of the inevitable difficulties met with in cases of this kind.

The practically much more important and interesting subject—namely, the operative treatment of extra-uterine pregnancy by abdominal section—as discussed by Dr. Smith, did not furnish the information I had hoped for. It showed throughout the dogmatic dicta of the text-book, but I did not observe that any of the vital questions in this connection were discussed with reference to the literature of the subject.

Extra-uterine pregnancy has been discussed in this Society two or more times within the last ten years, and the discussion has been based on cases much more illustrative than the two rather commonplace cases which gave rise to this discussion.

Although the dicta of a text-book are ordinarily too dogmatic to admit of discussion, and are consequently not subjects for dis-

cussion before a scientific society, I shall attempt to draw out some points which at least admit of different opinions.

In primary intraperitoneal rupture the essayist advocates the necessity and practicability of immediate operation, regardless of the degree of shock. Dührssen (*Deutsche medicinische Wochenschrift*, No. 2, 1894; Ueber Tubarschwangerschaft u. s. w.) calls attention to the danger of necrosis in an exsanguinated patient, and the further danger of operation in the abdomen under such circumstances, when the congestion of the abdominal organs naturally following any laparotomy is likely to cause fatal cerebral anæmia and death on the table. He therefore advocates saline-solution infusion preparatory to operation.

This was first proposed by Wyder (*Archiv für Gynäkologie*, Band xli, Heft 1 and 2; Beiträge zur Extrauterinschwangerschaft). After Dührssen had lost one patient operated upon during shock, in his following cases he made infusion, prior to operation, of one to two litres of saline solution with satisfactory results, as the pulse became and remained stronger during the operation, and the patients recovered.

As to the question of immediate operation in tubal abortion, Säger (International Medical Congress, Rome; Ueber aktive Behandlung des tubaren Abortus) has operated in one year upon sixteen patients for this condition with only one death. He states that, although the immediate danger from hæmorrhage in tubal abortion is less than in rupture, the hæmorrhage often recurs, and, after the hæmorrhage has ceased, there is some danger of sepsis. At best the blood is absorbed but slowly. He therefore recommends abdominal section in preference to operation through the vagina, with or without removal of the uterus. The best time for operating is, however, three to four weeks after the cessation of the hæmorrhage. It is consequently desirable to wait, and not to operate immediately, as soon as the diagnosis is made or during the hæmorrhage, unless this should be very profuse and the symptoms urgent.

I take exception to the statement that in primary extraperitoneal rupture, with the child living, "operation should be made as soon as diagnosis is made." Although electrical treatment or morphine injections, with the object of causing the death of the fœtus, are practically abandoned, there may be exceptional cases in which this procedure may be useful. For instance, Lugeol (*American*

Journal of Obstetrics, September, 1894) made a diagnosis of extra-uterine pregnancy at seven months with a living child. But the patient was so weak that he did not dare at that time to make laparotomy. He injected five centigrammes of morphine into the shoulder of the foetus, which caused its death nine hours later. After two months and a half, when the mother had gained in strength, he made laparotomy and saved his patient.

If we look through the statistics for 1894, as collected by Leopold Mayer (*Nordiskt medicinskt Arkiv*, New Series XVII), we find some hints as to the expediency of immediate operation.

1. Operations in the first half of pregnancy. These cases are so enormously different in their clinical aspect from the later ones that it is better to classify them in separate groups.

Mayer's report shows 104 cases with 20 deaths—a mortality of 19.2 per cent.

a. Before rupture of the sac, 40 cases with 4 deaths—a mortality of ten per cent.

1. Tubal abortion, 33 cases, 2 deaths; mortality, six per cent.

2. Child alive, 3 cases, 2 deaths; mortality, 66.7 per cent.

3. Unknown, 4 cases, no deaths.

b. After rupture of the sac, 61 cases with 14 deaths—a mortality of twenty-three per cent.

1. Operation during acute stage, shock, anæmia, 27 cases, 10 deaths; mortality, 40.7 per cent.

2. Acute symptoms not present, consequently later operation, 26 cases, 3 deaths; mortality, 11.5 per cent.

3. Not known, 8 cases, 1 death.

It will thus be seen that it is more than doubtful whether it is proper to always operate in the acute stage in preference, in some cases at least, to waiting until the patient has recuperated from the anæmia or shock. It is possible that shock from rupture is due to other causes than the mere loss of blood; for instance, acute intoxication—that is, sudden absorption of poisonous substances contained in the foetal sac. Intoxication and sudden death from other diseases, such as rupture of an abscess, or echinococcus sacs, or other cysts, is well known. When there is no hæmorrhage, but symptoms of shock, the shock must be due to intoxication, and, of course, it must terminate either in death, or the patient will recuperate and can be operated on, whereas operation during shock would be impossible. Lange and other authors think that they

have saved lives by postponing operation until the shock of intoxication has passed away.

II. Operations in the second half of pregnancy. Mayer's statistics show 23 cases with 3 deaths—a mortality of thirteen per cent.

a. Child living; 4 cases, 2 deaths; mortality fifty per cent.

1. Sac and placenta removed, 1 case; recovered.

2. Part of sac and placenta removed, 1 case; recovered.

3. Sac and placenta left, 1 case; died.

4. Sac removed, placenta left, 1 case; died.

b. Child dead, 19 cases with 1 death—a mortality of 5.3 per cent.

1. Sac and placenta removed, 5 cases, 1 death; mortality, twenty per cent.

2. Part of sac and placenta removed, 1 case; recovered.

3. Sac and placenta left, 8 cases; recovered.

4. Unknown, 5 cases; recovered.

It seems evident that the danger of operating with a living child is so much greater than operation after the foetus is dead; that immediate operation as soon as the diagnosis is made can not be seriously entertained as an absolute rule. The question of waiting for or effecting the death of the foetus, therefore, must come up for serious consideration.

The fact that so many operations were made successfully after the death of the foetus would tend to prove that, in the majority of cases, the life of the mother is not unduly jeopardized by waiting for the death of the foetus. It is probably the wiser plan to individualize and carefully select the cases for operation with a living child when local disturbances in the abdomen call for operation, and, on the other hand, to temporize when there are no disturbances and the mother's condition consequently permits.

To operate immediately in all cases would evidently be to sacrifice the many on the altar of the few, and it is likely that clinical ability will enable the operator to select his cases.

It further seems to me that the advice of Litzmann to postpone operating until the placental circulation has stopped is not altogether to be discarded in cases where the condition of the mother permits. The difference in mortality of fifty per cent. in favor of waiting for cessation of the placental circulation may have been diminished with modern methods of operating and asepsis, but the

danger from hæmorrhage is not likely to vary to such an enormous extent.

The essayist says "if the placenta can not be removed, the sac is stitched to the wall and packed with iodoform gauze." To the use of iodoform gauze there are the following objections:

1. Danger of iodoform poisoning, as in many of these patients we may expect some disturbance in the function of the kidneys, pressure on the ureters, and so on.

2. Danger of hæmorrhage during the loosening of the placenta is not so very insignificant, and has resulted in the recommendation of a styptic packing—namely, gauze impregnated with salicylic and tannic acid. As these drugs are at the same time styptic and non-poisonous, and as iodoform has little antiseptic value, the use of styptic packing would be preferable.

The essayist states that "total extirpation of the sac can not be advocated at the present time, although it promises better results, as it has been employed in so limited a number of cases." Total extirpation is to be advocated in selected cases. It can be employed only in a few favorable cases, such as unruptured tubal pregnancy, and it is for the surgeon to determine, when he has opened the abdomen, the possibility of finishing the operation. This depends to some extent upon the ability and dexterity of the operator, but to a greater extent upon the wall of the sac and its relations to the surrounding organs. The more cases an operator has seen, the more he has operated, the better will he be able to lay his plans after he has opened the abdomen.

Dr. KARL SANDBERG: I have very little to say about the ætiology, diagnosis, or pathology of extra-uterine pregnancy, as these branches have been well discussed, but I would like to say a few words about the treatment. I would simply state in regard to the pathology, especially the location of the ovum, that Lawson Tait, in his book on the *Diseases of Women and Abdominal Surgery*, states that in seventy-six cases of ectopic gestation observed by himself, either by post-mortem or by operation, the seat of pregnancy in all cases was ascertained without doubt to be the Fallopian tube, and in all except one in the peripheral part of the tube—that is, the part outside of the uterus. In only one out of the seventy-six was the location of the ovum what we call interstitial. He states that he has seen no other forms of ectopic pregnancy, and does not believe much in them. He furthermore claims that in all cases that

have occurred in his experience, in which the gestation has gone beyond the period of primary rupture, the location of the foetus has been in the broad ligament. In regard to the diagnosis, he states that he has only met one case of extra-uterine pregnancy before rupture, and in that case he failed to make a diagnosis, because there was no special history pointing to that, and he made a diagnosis of occlusion and distention of the tube. At the same time he asserts that it would not make any difference in regard to a diagnosis after rupture, because, whenever he finds his patient in danger of death from conditions within the abdomen, which do not seem to be clearly of a malignant nature, but a correct diagnosis of which is impossible, he opens the abdomen and at once makes the diagnosis certain and successful treatment possible. In regard to the time of rupture, Mr. Tait has laid down the rule that rupture always occurs before the twelfth week, and that, in the experience of all operators, is the rule in the majority of cases, with the exception of the interstitial ones, when rupture occurs at a later date than in the tube itself.

Dr. A. Martin, of Berlin, has published some statistics in regard to the time of rupture. Of sixty cases, fifteen ruptured in the first month, sixteen in the second, twelve in the third, seven in the fourth month, four in the fifth, two in the sixth, one in the seventh, two in the eighth, and one in the ninth.

The late Dr. John S. Parry, of Philadelphia, published a book on *Extra-uterine Pregnancy* in 1876. He collected one hundred and forty-nine cases in which it was located in that part of the tube that does not traverse the uterus. One hundred and forty-five of these cases died.

Schauta, in Germany, has collected two hundred and forty-one cases during fifteen years, and Martin has added some to these, making a total of two hundred and sixty-five cases under expectant treatment. Of these, 36.9 per cent. recovered, while 63.10 per cent. died. Out of five hundred and fifteen cases treated by operative methods, 76.7 per cent. recovered and 23.3 per cent. died. When we come to the treatment of these cases we have to divide them into different classes. If a diagnosis is made before rupture, treatment by injections and electricity may be said to be given up, although even during the last two or three years such an authority as Franz von Winkel has again taken up the method of morphine injections, and out of seven cases so treated six were brought to a

rapid recovery. After primary rupture, the question comes up whether the rupture is extraperitoneal or intraperitoneal. If it is extraperitoneal, then as a rule these cases can safely be let alone and they will do well; the ovum and the coagula will be absorbed. It is probable that a great many such cases have recovered without being observed. There are only three or four conditions that will demand interference in these cases; in the first place, hæmorrhage in such volume that it threatens the life of the patient. These cases, I believe, are rare, but when met with I believe they should be dealt with by abdominal section, that the supplying vessel should be ligated, and the sac packed and stitched to the abdominal wall. Surgical interference is also necessary in case a secondary rupture occurs over the first primary intraligamentous rupture, where we practically have an intra-abdominal rupture. Thirdly, absorption may not take place, but suppuration gradually come on, and these cases, I believe with Dr. Henrotin, should be treated by vaginal section. According to my experience in such cases, the sac is so brittle and so difficult to handle that it is practically impossible to close it off from the abdominal cavity by sutures, and I consider it a great deal safer to approach through the vagina. Fourthly, the death of the fœtus may not occur after rupture of the broad ligament, and it may go on developing in the ligament and either go on to full term or die at any time during gestation.

In case rupture takes place into the peritoneal cavity, it seems that we all agree that operation is the only thing that can be expected to save the patient; the only question is whether operation should be done immediately during the shock or afterward. The history of these cases is that the patient does not die, as a rule, from the first hæmorrhage, but generally from repeated hæmorrhages, so I should consider it fairly safe to wait after the first rupture has taken place until the patient had gained a little strength before performing the operation. Of course the operation in these cases can only consist in one thing—that is, ligating the vessels and removing the tube with its contents. If the extra-uterine pregnancy goes on to full term, the question comes up whether to operate and try to save the life of the child or to let the child die and try to save the life of the mother only. Dr. Barry in his book takes strong grounds against operating on the living child, claiming the prognosis is a great deal worse when the child is living than after it is dead. In thirty cases operated on after the child had died, and a

sufficient time had passed to stop circulation in the placenta, twenty-eight recovered. The operation was by incision of the abdominal walls, or simply by dilatation of the fistula that had formed. Of twelve cases of gastrotomy, performed after the suppurative process was well advanced, ten operations were successful. While nine women operated during the existence of foetal life, or soon after its extinction, all died. Lawson Tait is strongly opposed to these views, claiming that it is unsurgical, and that the proper way to do is to allow the child to go until it is viable, and then operate while the child is living. This is probably yet an unsettled question, but A. Martin is also in favor of operating on the living child, and I believe it will be the operation of the future. These operations for extra-uterine pregnancy have only been performed during the last thirteen years, and we have not the experience or skill that others will have ten or twenty years from now. Different methods of dealing with the placenta in operations at full term are being devised from time to time, and they will make the operation more simple.

It seems unnatural that a woman should be better off with a dead foetus in her abdomen than with a living one. Lawson Tait is opposed to the vaginal route, because he says that extraction of the child is difficult; it is almost impossible to save the life of the child; and, furthermore, it is almost sure that the parts will be more or less torn, and there is great danger of concealed hæmorrhage. It is next to impossible to deal with the placenta by vaginal section. The method of dealing with these cases that he recommends is to make an abdominal incision two or three inches away from the median line to the side the pregnancy is supposed to be on, in order to open the sac without opening the peritoneal cavity. In the five cases he had operated on at the time he published his book he came right on the sac containing the foetus; consequently, it was extraperitoneal, and the abdominal cavity was not opened. The child is to be removed carefully, so as to avoid tearing as much as possible. The cord should be divided close to the placenta; the placenta should be emptied as far as possible of blood. The interior of the sac should be carefully cleansed, and the cavity filled with clean water and washed. After introduction of the sutures, the cavity should again be washed out with water by means of his siphon trocar, the stitches tied with the trocar still in the sac. The siphon action should then be reversed, the sac

emptied, and the trocar withdrawn. This would seem to me almost an ideal method, especially with aseptic precautions. In some cases he has left the cord out at the lower angle of the wound. All the women have recovered, but they had to go through a long siege of suppuration. In a couple of cases he was able to ligate and remove the placenta, and stopped the bleeding by styptic applications.

The method recommended by A. Martin is in all cases where possible to separate the sac and tie its base, or, if this is not possible, to take care of the supplying vessels separately. He says that the placenta also can be ligated by applying ligatures, progressing gradually from the periphery toward the center. Olshausen has suggested putting a mass ligature on the infundibulo-pelvic ligament in cases where the sac can not be separated from the neighboring organs, claiming that the principal part of the hæmorrhage comes from the spermatic artery. From all these different suggestions I believe we will be able to find the best way of dealing with these cases surgically.

Dr. C. S. BACON: I would like to say one word in regard to the method of operating by the vaginal route. In the very careful and conservative paper of Dr. Henrotin he has not described the *method* of operating with any detail, but the impression is left that he operates generally through the posterior *cul-de-sac*. Indeed, that seems to be the method of operating that is generally adopted, judging from the remarks of one or two others who have spoken of operating through the vagina. The objection to the vaginal method—namely, that hæmorrhage can not be well controlled—is based upon the fact that the incision is always made posteriorly to the uterus, and the only method of controlling hæmorrhage is by the tampon. Now, it seems to me from the observation I have had that in many cases an incision anterior to the uterus is much better than an incision posteriorly. It makes a decided difference in the operation whether the incision is made in front of the uterus through the plicæ vesico-uterinæ or posteriorly through the *cul-de-sac* of Douglas. When the opening is made anteriorly, and the fundus of the uterus pulled outside, access is furnished to the broad ligament and to the upper part of the pelvic cavity much better than when the opening is made posteriorly. This has recently been shown by the operations of Wertheim and Bode, who shorten the round ligaments through the vaginal opening. It has been shown to be an

easy matter to reach the round ligaments at their exit from the abdomen by this method, and make folds as well as by a laparotomy. This procedure is also one of the features of Dr. Byford's operation for retrodisplacement of the uterus, as described by him at our last meeting. Certainly this could not be done if the incision was made posteriorly. Wertheim has also recently shortened the sacro-uterine ligaments through a vaginal incision anterior to the uterus. The ligation of the tube and infundibulo-pelvic ligament is quite possible when the operation is made in this way, and we are not obliged to rely upon the tampon to control hæmorrhage; hence, some of the objections to the vaginal route of operation which have been urged to-night would to a certain extent fail. Of course these remarks apply chiefly to tubal pregnancies of the first, second, or third months. In such a case as that described by Dr. Henrotin this method could have no place.

Dr. WILLIAM REYNOLDS: I believe that the question of hæmorrhage is greatly overexaggerated. In the case which I reported here two months ago, where I operated by the vaginal route, the hæmorrhage was *nil*. Last week, at Atlanta, Dr. Kelly, of Johns Hopkins University, reported twelve or fourteen cases which he had operated recently by the vaginal route, and he was very enthusiastic in praise of the operation. He spoke of operating upon a sac before the fœtus is dead. Lawson Tait, who has operated many times, along in the '60's or '70's, said in all cases he had seen rupture had taken place before he saw the patient, and that usually the patient herself was ignorant of her condition. In regard to surgical shock, of course it is a rule laid down that no surgeon should operate upon a moribund patient. We should wait until the patient is in a condition in which we feel she will survive any operation; wait for an hour, or six hours, or for a day, if the patient does not rally sufficiently to undergo operation, then I believe a surgeon would not be justified in operating. I should not wait for the recurrence of hæmorrhage, but I should wait until the patient was in a condition to satisfactorily undergo operation.

Dr. T. J. WATKINS: I would like to speak with reference to the interesting specimen Dr. Henrotin has exhibited. The outcome of the case is not surprising when we take into consideration the great complications which were present and the very bad general condition of the patient. If the condition could have been known as well before operation as after, I think the vaginal operation

would have been much more preferable—that is, without opening the abdomen first. It was certainly impossible to complete the operation by the abdomen, and, by first going into the vagina, the patient would have been saved some blood, there would probably have been less shock, and she might possibly have recovered. It is better not to decide on the method of operation, but on the place where the operation should be commenced; it may be commenced by the vagina and finished by the abdomen, if necessary, without specially complicating the chances of recovery. It is good surgery in the earlier cases, subsequent to hæmorrhage, if the mass is low down in the pelvis, first to make an incision through the posterior vaginal wall and to complete the operation through the abdomen if it can not be easily done through the vagina. By doing this the danger of hæmorrhage is very little more, as care can be taken not to separate tissues that will bleed in cutting into the vagina, and the danger of sepsis is very little if the vaginal incision is carefully made and the parts thoroughly cleansed before the abdominal incision is made.

The point brought up by Dr. Fenger as to the advisability of not operating during shock or the use of restoratives, especially saline solutions, would seem, from a theoretical standpoint, not to be a good one, because hæmorrhage in nearly all of these cases stops on account of low blood pressure. He, however, fortifies the position he takes with cases which would seem to demonstrate that it is good practice, although it does not seem so theoretically. I would like to ask Dr. Fenger how it can be determined whether hæmorrhage is continuing or not. In a recent case I was very much puzzled to know whether the hæmorrhage had stopped or not. One of the assistants advised delay on account of the poor condition of the patient, but the abdomen was opened, and it was found that the hæmorrhage was continuing. In these cases it is often difficult to say whether sepsis is the result of operation or of absorption of serum, so it would often be impossible to vary the method of operation with the distinct idea that it was a suppurative case or one due to absorption of serum.

Dr. H. P. NEWMAN: One point which has not been mentioned, and which is important, particularly in advanced cases and in the vaginal operation, is the desirability of avoiding the placental site in the primary incision.

The suggestion made by Dr. Bacon that an incision anterior

to the uterus may be better than one posterior would apply especially to this point. The placental site is the factor in the uncontrollable hæmorrhage. To enter through the vaginal route posteriorly means coming immediately upon the placental site, as it is usually situated in the more dependent portion of the sac behind the uterus.

Were it possible to enter the sac by an incision anterior to the uterus we might avoid this, though we are not unmindful of the difficulty of so doing, on account of the high position of the cervix and the frequent crowding of the uterus forward.

In the abdominal incision we should certainly avoid this important area, as the placental site can usually be made out.

If this is important in Cæsarean section for intra-uterine pregnancy, it is doubly so in those cases where the sac walls have not the contractility which obtains in the uterus proper for controlling hæmorrhages. Modified subperitoneal operations would seem to be indicated in advanced cases where it is possible to extract the child and accomplish the procedure in this way. I would take exception to Dr. Watkins' instruction always to enter first through the vagina. In advanced cases exploration through the abdomen, or the subperitoneal method just referred to, would, I think, be preferable. Subsequently, drainage can be provided, if thought best, more intelligently through the vagina, leaving the placenta intact or otherwise.

The early diagnosis of these cases is extremely important, and not so difficult as would seem, judging from statistics of the large number of cases unrecognized until rupture has taken place.

The symptoms of ectopic pregnancy are rather well defined, and, if more strict observation were made of suppressed or irregular menstruation, more of these cases would be diagnosed and operated upon before rupture.

I would ask Dr. Henrotin what anæsthetic was used in his case. I would not imply by this question that Dr. Henrotin or any Fellow of this Society would use chloroform in these cases where the patient is anæmic or exsanguinated, but I would deprecate its use in all such cases, as excessive hæmorrhage may occur, and I have known of cases where I believe the anæsthetic was immediately responsible for death rather than the shock or loss of blood.

Dr. FINGER: Dr. Watkins asks how we can know when hæmorrhage is stopped. It is, of course, impossible to know when

hæmorrhage will remain stopped; all we can do is to watch the patient and try to come to a conclusion from the symptoms.

He also asks how we can decide upon the presence of serum or pus. This we do by exploratory incision with the hypodermic needle. It can do no harm, and will settle the question.

Dr. HENRY T. BYFORD: With regard to the proposition to ligate the uterine arteries, I should consider it impracticable in advanced and unnecessary in early cases.

Ligaturing the uterine and spermatic arteries does not shut off all the blood supply. The mesenteric, hæmorrhoidal, and vaginal vessels supply more or less blood.

The field for vaginal section is found in the earlier stages, when the condition is pelvic; the field for abdominal section in the later stages, when the condition is abdominal. In the earlier stages before rupture or tubal abortion, or even after rupture, but without much hæmorrhage, the vaginal route should have the same consideration as for a sactosalpinx. On the other hand, it would be about as rational to remove a large adherent ovarian tumor by vaginal section as an extra-uterine pregnancy after the fifth month. When the fœtus is dead we then operate for a foreign body, or hæmatocele, or for an abscess, and in such cases can often evacuate through the vagina.

Much has been said and done in the way of leaving the blood in the abdominal cavity to nourish the patient. Such a procedure for such a purpose is absurd and dangerous. The serum alone is rapidly absorbed. The remaining clot acts as an irritant, and is apt to interfere seriously with the normal circulation and absorbent power of the alimentary canal, as I have observed, and is liable to undergo septic changes. Colic and subcutaneous injections of a normal salt solution just before or immediately after the operation will accomplish the same result. The only rational reason for leaving the clot is that the patient is so near dead that the operator must finish quickly, and exposure of the abdominal contents is so slight that sepsis is not to be feared. Yet infection of the clot and abscess is observed in cases that have not been operated upon. The greater part or all of the clot can usually be quickly removed.

As to the time for operating, I should say that immediately after rupture is the best time if we can not do so before, for it is difficult to determine how much blood will be lost. If the hæmorrhage has ceased for several hours, absolute immobilization of the trunk for

several days, and an ice-bag on the abdomen for forty-eight hours, may be expected to prevent a recurrence in tubal abortion, and in all cases but those in which the first recognized hæmorrhage threatens to prove fatal. Later operations must depend upon the progress of existing conditions, and should not be predetermined by any fixed rule of action for all cases.

Dr. HENROTIN: There is one question, and it is a question of the future—that is, How can you tell in the early stages whether it is tubal abortion or tubal rupture? I do not see the least diagnostic sign that makes any great difference in these cases, unless sometimes the character of the pain gives some indication as to whether it is rupture through the tube or abortion through the tube.

Dr. WATKINS: A pregnancy in the outer third of the tube usually terminates in abortion, and a pregnancy in the inner third nearly always terminates by rupture.

Dr. BYFORD: I have seen abortion occur in the middle portion of the tube. I think the character of the pains will help us.

Dr. FERNAND HENROTIN (in closing the discussion): First, regarding early rupture and loss of blood, I want to say that my paper plainly points out that I only have reference to acute early ruptures, and a little later on I state that in a case only seen a little time after the hæmorrhage, where a pretty definite opinion can be given of the possibility of rallying the patient, the case is much more likely not to be operated at all, and frequently a number of these cases do better; I have seen quite a number. But what do you do when you get a woman who within two or three hours is pulseless, cold, and white? As a general rule, where cases are so acute, you can put it down that the patient is going to die. She is absolutely pulseless, and you can not wait for rallying or anything else. You have got to take the patient into your own hands, put her where the head is low down, give her ether, and make a quick incision, and by all means leave the blood; your patient dies while you are cleaning out the blood. These acute cases are usually very early in the beginning of pregnancy. Those cases rupture with horrible suddenness. I am not talking of ten-weeks' cases. Where the implantation of the ovum is on the upper border of the tube or the broad ligament, they go on to ten weeks and over; but in these other cases it is death or do something in short order. I have given this case simply to indicate that some distinction can be made

between the cases as to whether we should operate or not, and then which cases can be operated in shock. You have got to have the hole closed where the blood comes from, and, as you know your patient is dying when she is bleeding that way, the thing has got to be done at once or your patient is gone. This patient was operated absolutely in cold blood. There is one important symptom—that is, jactation or tossing of the patient. Every one of us in hospital work knows that when a patient who is exsanguinated begins to toss about we have the final scene preceding dissolution. But if you don't think your patient is dead, you still have a show for her if you operate quickly enough. The doctor says about the blood left in that only the serum is absorbed. That is what we want; until the vital forces pick up you can not spend any time cleaning out the cavity in these early cases of large rupture and hæmorrhage. As regards my particular case, hindsight, as we say, is better than foresight. Now, looking that case over, I can see a way that might give a better result than we have here. You must remember that the uterus is high up, the cervix is high up behind the pelvis, that the whole thing is a solid mass with adhesions. When any one talks about liking to make an abdominal operation, I can only say what I said in the paper—that I do not believe any living man could have delivered that woman abdominally without losing her. The adhesions were extensive, there were pools of blood here and there, and in order to work through there a very little puncture would penetrate the bowels, which undoubtedly were adherent all over. Now what would you do? What would I do if I were to take this case again and try to bring it to a successful issue—these repeated hæmorrhages, the constant fainting spells of the woman, and her depressed condition? I would not do the same thing over, but just as sure as sunshine for that woman to live in such a low condition as she was in, something had to be done; she could not go to term or anywhere near it. Here was the child presenting in the pelvis; if you had cut here you would have fallen into the anterior *cul-de-sac*; you could not reach the anterior fornix and bring it down. Now, I would revert to the old method and stick a hypodermic needle right into the child, inject it with a good dose of morphine and kill it, then sit down and wait, leaving my patient in the best condition I could, and at the first sign of beginning sepsis I would imitate Nature and make thorough drainage through the vagina, wait a month or six weeks

until the placenta was all down, if I could, and take out the child; and I would expect to have a better show for saving the woman than I did.

Dr. CHARLES N. SMITH (closing the discussion): I am accused by Dr. Fenger of being dogmatic. If the somewhat vigorous statement of my opinions concerning the treatment of ectopic gestation can be called dogmatism, then I willingly plead guilty to the charge. I hold that every man of experience is entitled to some opinions without apologizing for them by multitudinous quotations from foreign literature. It was not my purpose to present a literary compendium for your consideration. If my paper contains some positive statements, it certainly possesses the merit of showing where I stand on this subject. Even now, at the close of this discussion, I see no good reason for the slightest change in my views.

The two cases reported at a previous meeting, one of which was *mine*, are characterized by Dr. Fenger as commonplace. I am *pleased* to know that he considers my case as a commonplace one. *He has* grasped the very point which I wished to emphasize—that *tubal* abortion is far more common than is usually considered. He *must* bear in mind that it is the thoughtful and exhaustive consideration of commonplace cases that has established the rules of procedure in every-day work, while the study of unique cases is of but little practical value.

Dr. Fenger, fortified by a quotation from Dührssen, objects to *my* advocacy of the necessity and practicability of immediate operation in primary intraperitoneal rupture regardless of the degree of *shock*. This objection hinges mainly on the *time* for the employment of the saline solution. Dührssen, along with the multitude, advocates the infusion of saline solution *before* operation. I advocate its employment *during* operation and *after* control of the bleeding vessels. Dührssen would increase the volume of circulating *fluid*, thus distending the partially emptied vessels and stimulating the heart to more powerful action before the vessels have been secured. At the risk of still being dogmatic, I will state that any procedure which increases arterial pressure favors hæmorrhage from an open blood vessel. What can more profoundly increase arterial pressure than a marked increase (one or two litres) in the quantity of fluid within the vessels and the consequent powerful stimulation of the heart? Control of the bleeding vessels of the tube can be secured almost instantly after the abdomen has been opened. Then

the salt solution may be safely and advantageously employed. Surely no time has been given for the occurrence of fatal cerebral anæmia the result of manipulation within the abdomen. I must still contend that, from both a physiological and clinical standpoint, the point which I have made is well taken. I did not deem it necessary to inflict upon you excerpts from the literature relating to the employment of salt solution. It is now practically ancient history. You are all clinically familiar with its employment.

Dr. Fenger quotes the statistics of Leopold Mayer to strengthen his argument against immediate operation in primary intraperitoneal rupture:

"1. Operation during acute stage, shock, anæmia, 27 cases, 10 deaths; mortality, 40.7 per cent.

"2. Acute symptoms not present, consequently late operation, 26 cases, 3 deaths; mortality, 11.5 per cent."

These statistics on their face and standing alone present an argument of some weight.

Do they tell the whole story? It will be noticed that one more than one half of the whole number of cases demanded immediate operation. They were unquestionably serious cases threatened by impending death, and yet seventeen out of twenty-seven were saved. How many of the twenty-seven would have survived without an immediate operation? That is the point. Now note, by the following extract from my paper, that I have not advocated immediate operation in all cases: "When called at this period (primary intraperitoneal rupture) the surgeon is placed in a position where clear judgment, diagnostic ability, and rapidity in thought and action are most necessary. A decision having been reached in favor of intraperitoneal rupture, immediate *preparation* for operation must be made. This must be followed in all cases of *severe hæmorrhage* by the immediate performance of abdominal section."

Another point overlooked by those who are so willingly guided by statistics relates to the large numbers of women who die from primary intraperitoneal rupture without operation either early or late. Refused an early operation, they die before the very eyes of the waiting surgeon. Those cases, for obvious reasons, are largely beyond the reach of the statistician. Until such time as reliable reports concerning this latter class can be obtained, such one-sided statistics as are quoted above should not be allowed to militate against immediate operation in severe intraperitoneal hæmorrhage.

My critic, basing his view on a paper by Sanger, objects to immediate operation in tubal abortion, advising delay until three or four weeks after the cessation of the hæmorrhage. He admits, however, and by the admission emasculates his argument, that "the hæmorrhage often recurs, and after the hæmorrhage has ceased there is some danger of sepsis."

I believe it to be absolutely impossible, in the present state of our knowledge, for any man, it matters not how experienced he may be, to say when the hæmorrhage from tubal abortion has ceased not to recur. While the primary hæmorrhage from an incomplete tubal abortion may be slight, a recurring, profuse, and fatal hæmorrhage may take place during any one of the twenty-one or twenty-eight days of delay which he indorses.

"There is some danger of sepsis"; so much so that more than one accomplished surgeon has operated upon a septic patient for the evacuation of a supposed collection of pus only to find a circumscribed hæmatocele the result of a tubal abortion. As I have said in another portion of my paper, it is the treacherous uncertainties which surround these cases that should prompt us to refuse to be tricked into a false sense of security and a policy of delay.

In reference to operation with a living child, my paper dealt with cases seen prior to the completion of the fourth month, as contrasted with those seen after that period. I urged that operation be performed without delay in all cases seen during or before the fourth month. Operation at this time is not attended by either the great difficulties or the extreme hæmorrhage met with in later operations. This early operation spares the mother the dangers of secondary intraperitoneal rupture, with terrific hæmorrhage if the placenta be torn or dislodged, and possibly sudden death before surgical relief can be secured.

Dr. Fenger notably misquotes me in reference to enucleation of the sac in late operations. I said: "This procedure more nearly approaches the ideal than does any operation contemplating the leaving behind, even for a few days, of the placenta. At the present time, in view of its employment in so limited a number of cases, this method of operation can not be urged as one promising better results than are obtained by the older methods." As Pinard well puts it (*Bulletin de l'Acad. de méd.*): "The removal of the cyst is, perhaps, more surgical, but certainly less prudent."

Official Transactions.

T. J. WATKINS, M. D.,

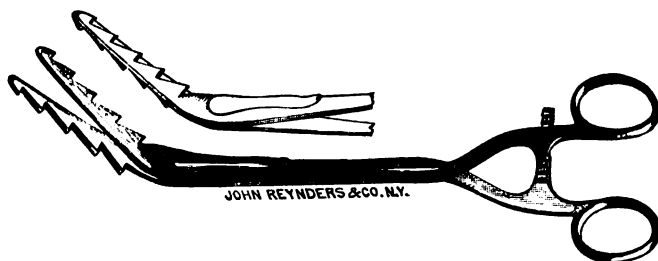
Editor of Society.

TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, May 5, 1896.

The *Vice-President*, A. PALMER DUDLEY, M. D., in the Chair.

Dr. W. R. PRYOR exhibited an intra-uterine traction forceps. It differs from Bernay's in that the blades open laterally, and the intra-uterine portion is bent upon the handles at an angle. It not only enables the operator to draw the uterus down, but to antevert or retrovert it as he sees best. By rotating the uterus with it the operator is aided in separating the bladder from the uterus as the hard uterus rotates beneath the loose bladder tissues. The uterus is entirely under command of the operator, the traction is from within the organ, and the least possible amount of bleeding is produced. Simply, it is one instrument holding the uterus from a dozen points



rather than a number of traction forceps each holding at one point. He stated that it had helped him very much in dealing with suppurative cases.

Dr. CLEMENT CLEVELAND exhibited an electrode. He said that he was in the habit of using ligatures chiefly in his vaginal operations. He always ligates the uterine arteries, and this is an electrode that is tied in with the silk ligature. At the end of thirty-six hours he attaches it to a three-cell storage battery, burns the loop, and pulls out the ligatures. He finds it of great benefit to the patient to remove the sutures in a short time. The cases in which he has used the instrument presented have done remarkably well. There is no secondary sepsis, as sometimes occurs after a week or ten days,

when the ligatures are left. The instrument is simply a loop of platinum attached to copper wires.

DISCUSSION.

Dr. A. J. C. SKENE said he could see where the great advantages of the instrument presented by Dr. Pryor lay, but he also saw where disadvantages would arise. In the case of cancer limited to the canal or cavity of the uterus, it is exceedingly important that one should close the canal altogether and keep it closed to prevent septic or cancerous matter from coming in contact with the wound. He does not see how the instrument can be used in cases of cancer. The same thing obtains in cases of gonorrhœa, where it is desired to remove the uterus and tubes and ovaries, in cases of double pyosalpinx, for example, and the uterus is still actively infected. He always takes pains to cleanse the canal of the uterus and pack it, and, if he can not close it completely with the forceps, he sutures the os externum. Of course, if the wound is contaminated, the operation, if not a failure, will be such that convalescence will be very much slower. In cases where there is no possibility of sepsis, or of malignant material coming in contact with the wound, the instrument will facilitate manipulation and the whole operation very much. Concerning the instrument presented by Dr. Cleveland, he has found the silk ligature very much more easily handled than the catgut, and has more confidence in it, but has found the objection to it that Dr. Cleveland has overcome. In his opinion, the use of the electric cautery is the coming method. Dr. Byrne uses it. The speaker has also used the cautery, though he has not yet completed an operation with it. A great advantage in the use of the cautery is that there is no possible way of getting septic infection from the stump. When the profession becomes more accustomed to the use of the cautery as a hæmostatic it will be possible to operate as rapidly as is done with the ligature, and the parts are left in better condition to guard against sepsis. Dr. Cleveland was the first to call attention to this subject, and all that has been added since has been at his suggestion.

Dr. CLEVELAND said that, in one case where a few days ago he had removed quite a large fibroid, he removed in thirty-six hours eight double ligatures with this attachment. In every case he had removed the ligature in thirty-six hours, with no hæmorrhage.

Dr. EDEBOHLS said, in regard to the instrument of Dr. Pryor, that it is based on the same principle as that of Bernay. When it first came out, some years ago, Dr. Bernay's instrument appealed very strongly to his mechanical conception of the fitness of things in doing vaginal hysterectomy, but, after using it in a number of cases, he found no special advantage in its use, even in clean cases. Where the interior of the uterus is infected, it is not advisable to keep it open by any process. Whether the modification of Dr. Pryor, by spreading the blade laterally instead of antero-posteriorly, is of any assistance he is not in a position to judge. As to the instrument of Dr. Cleveland, it may be a very good thing for those who must use silk in their work, but the instrument can be very well dispensed with, together with other disadvantages of the silk ligature, by using catgut. The catgut ligature can be made as safe as the silk by a little extra care in its application. In performing vaginal hysterectomy, he applies the catgut ligature as a transfixion ligature, penetrating the tissues on one side of the vessel and tying the knot on the opposite side to prevent the ligature from slipping off. The knot he secures against slipping by making two turns in the second half of it. The operation referred to by Dr. Skene as practiced by Dr. Bryne has been done considerably in Berlin. Mackenrodt has reported upon it, after practicing it for a number of months. He calls it *igni-extirpatio uteri*, and seems to be very well pleased with the results. Of course, it is one of various methods that are allowable, and he believes that the more methods we have the more likely we are to find one satisfactory to the majority after a certain period of trial.

The Function and Pathology of the Reticular Tissue.

BY A. W. JOHNSTONE, M. D., CINCINNATI.

(See page 166.)

DISCUSSION.

Dr. DUDLEY said that the paper showed evidence of a quarter of a century's work. He wished that the Society was in a position to discuss the question, and he hoped that those present would do so. He certainly was not able to do it.

Dr. FRANCIS FOERSTER said that to his mind the amount of

work represented by the paper was simply tremendous. He had only done work for three years in this direction—physiological and pathological—but he knew how much of his time and energy it had taken to attain the few little facts that he had arrived at. The paper covered such an immense field that he did not believe he was entitled to say one word. It wanted more of an education and more training in this special field than he possessed. However, in the use of glycerin he believes is to be found the explanation of the fact that the doctor sees certain things which others absolutely deny. Glycerin gives sharp pictures—much better pictures than can be obtained with Canada balsam. He believes that the usual way of hardening and coloring specimens is to be looked upon as the second difficulty. Dr. Heitzmann uses nothing but the old way of hardening. Dr. Johnstone uses the freezing microtome. The speaker believes that to be a step in advance and in the proper direction, and is greatly impressed with the amount of skill which the doctor must have attained in making these preparations to get such fine sections. The next question is as to the lens. He understands it to be able to give an amplification of three thousand. He would like to ask Dr. Johnstone as to the kind and make of lens, whether imported or not.

Dr. JOHNSTONE replied that it was made in New York, by Wales, and was a $\frac{1}{30}$.

Dr. FOERSTER (continuing) said that was an interesting point. He uses a Zeiss apochromatic immersion lens, and twelve to fifteen hundred is the best he can do with fine sections.* He differs with Dr. Johnstone as to the definition of the reticulum. He looks upon it in the same way as Dr. Heitzmann does.

Dr. E. L'H. MCGINNIS asked Dr. Johnstone the name and address of the maker of the microtome.

Dr. JOHNSTONE replied that he could not give the name and address, but it was right opposite the gate of the Royal Infirmary in Edinburgh. It is a plain sulphuric ether machine—a square, open box with the apparatus underneath, with an ordinary spray and a double bulb. It delivers the spray under the table, and the whole skill about cutting is how much to turn the screw.

* To get slices thin enough to allow an amplification of 3,000 must require great dexterity and a specially finely constructed microtome. He uses a Jung microtome, and thought up to now that he had one of the best instruments in this respect; he will think differently in future.

Dr. MCGINNIS said the skill was Dr. Johnstone's and not in the microtome.

Dr. McGinnis asked what was used on the specimen to be cut before it is frozen.

Dr. JOHNSTONE replied, water; that the slides could be made any size desired. These specimens of liver were cut and made an inch square.

Dr. MCGINNIS inquired what had been the success of the doctor with brain tissue.

Dr. JOHNSTONE replied that he had not tried it, but that the pulp of a feather is softer than brain tissue. The only way to do is to freeze it, but to be sure not to try to freeze anything that has been in a hardening solution, for anything that has been in alcohol or any other of the materials used for hardening will not freeze. The fresher the specimen the better will be the results.

On motion, the thanks of the Society were tendered to Dr. Johnstone for his paper.

Official Transactions.

ARTHUR M. JACOBUS, *Recording Secretary*.

THE STATUS OF GYNÆCOLOGY ABROAD.

SWITZERLAND.

On the Operative Treatment of Large Myomata of the Uterus.

M. WALTHARD (*Correspondenzblatt f. Schweizer Aerzte*, February 15, 1896) considers the extirpation of myomata uteri by laparotomy only justifiable in those cases where the tumor is too large to be removed by the vagina, and has not responded to electrical treatment. Unfortunately, there are many such cases; so it behooves us to improve the technique of this procedure in every possible way.

There seems to be an effort being made in certain directions to revive the former extraperitoneal treatment of the stump—*i. e.*, that of suturing the pedicle of the myoma into the abdominal wall. This method has many disadvantages as compared with the intraperitoneal treatment. One need only mention the unavoidable hernial ring in the line of the suture after atrophy of the stump, the tedious after-

treatment, and the danger of incarceration of intestinal coils, to condemn it. On the other hand, excellent results are being obtained by the intraperitoneal method. Improvement in the mortality should be obtained not by returning to the extraperitoneal method, but by greater care and study of the details of technique of the intraperitoneal method.

The most important point is the prevention of secondary hæmorrhage and the saving of blood during the operation. To insure this, the ovarian and uterine arteries should be ligated separately and carefully, and also the cervical stump (the author prefers to leave the cervix). As the result of experiments upon animals the author uses the ligature around the uterine stump in preference to the suture, as recommended by Schröder.

The ligated cervical stump does not become necrotic if catgut or silk is used. It is necessary to use a ligature that cuts into the tissues rather than the rubber bands that have been suggested.

Many operators fear a subsequent infection from the vagina and cervical stump. This fear seems to have been based upon the statement of Winter, that "the cervical secretion of every healthy woman contains micro-organisms in abundance." Later investigations have shown the contrary to be the case. The aseptically buried cervical stump remains aseptic. The mucine that is secreted by the glands of the cervical canal is an active germicide, and applications to the canal of caustics, thermo-cautery, etc., must be considered a mistake, as they destroy the physiological protective.

Intestinal adhesions and their consequences, which vary from slight disturbances of digestion to complete obstruction, should be avoided by preventing injury to the serosa during the operation. Plastic exudations and consequent adhesions occur after septic infection, injury to serous membrane by the application of chemicals, by injury with dry napkins, or other measures.

Non-absorbable ligatures become encapsulated, and in this process adhesions occur. Non-absorbable ligatures should be placed extraperitoneally, and all raw surfaces should be carefully covered.

AUSTRALIA.

Case of Ovarian Dermoid Cyst ; Removal. Subsequent Development of Spindle-celled Sarcoma ; Death.

FORBES (*Intercolonial Medical Journal of Australasia*, January, 1896), in attempting to remove a densely adherent dermoid cyst,

was unfortunate enough to infect the peritoneal cavity with its contents, which consisted of grumous pus, sebaceous matter, and hair. The cavity was thoroughly irrigated with hot water. She never was free from a slight rise of temperature, but appeared to do fairly well until three weeks after the operation, when a swelling was noticed in the lower part of the wound. The temperature went up and she complained of much pain. A swelling now appeared in the perinæum. It was opened and gave exit to a quantity of caseous-looking material resembling the cyst contents. The swelling near the incision was then incised, a quantity of the same material evacuated, and a drainage-tube introduced.

The cavity showed no tendency to close, but enormous granulations formed upon its surface. They were œdematous and quickly reproduced themselves. The patient died three months after the operation from exhaustion.

The contents of the cavity and one of the granulations were examined, and found to contain "clot" and œdematous net-celled sarcoma and spindle-celled sarcoma.

PÆDIATRICS.

UNITED STATES.

Purulent Rhinitis of Children.

J. H. COULTER, Chicago (*Chicago Med. Record*, March, 1896), protests against the popular idea that purulent rhinitis is always due to a syphilitic or tuberculous diathesis. Neither is uncleanness so potent a cause as is generally supposed. The disease seems often to follow some stenosis of the passage, inasmuch as a closed mucous cavity tends to develop purulency. We must also remember that a slight irritation, which in an adult would result in turgescence or hypersecretion, will in a child produce hypertrophy or pus. Purulent rhinitis must be diagnosed from adenoids, the third stage of acute rhinitis, foreign bodies, sinus involvement, and necrotic processes. The prognosis and prompt treatment are rendered important because, the cells becoming easily exhausted by overactivity, atrophic rhinitis results. Of complications, the voice is often affected; pharyngitis, tonsillitis, and bronchitis are frequent; the purulent discharge may be

forced into the adjacent sinuses, giving rise to purulent processes therein ; or, being swallowed, may interfere with digestion, and, being absorbed, may develop eczema, chlorosis, chorea, anæmia, rheumatism, furuncles, neurasthenia, or a latent tubercular or syphilitic diathesis, which things are thus often the result rather than the cause of the purulent rhinitis.

Treatment.—If we can be certain that there is a dyscrasia which is really causative, rational constitutional treatment is indicated. Hygiene and local cleanliness must be inculcated. For local treatment the author recommends the use twice daily of a mild alkaline spray, to be followed by some such spray as—

℞ Eucalyptol.....	gtt. v ;
Thymol	gr. ij ;
Campho-phéniqué	℥ ss. ;
Sabalol.....	q. s. ad ℥ iij.

The spray is the best means of application. Post-nasal injections are not advisable in the average child. Treatment must be continued even after the complete cessation of muco-purulency.

A Study of Sporadic Cretinism.

W. B. NOYES (*N. Y. Med. Jour.*, March 14, 1896) saw on September 1, 1895, a case of cretinism which he describes as follows: Parents healthy ; family history negative ; the case was a first child ; labor, though prolonged, was normal ; weight at birth, eight pounds and a half ; at two months, fourteen pounds, after which there was only transitory gain. On inspection, the child, though two years old, was not much more advanced than a normal baby of six months. It seemed bloated, cheeks and face were puffy, abdomen protuberant, eyes dull, nose short and *retroussé*, tongue swollen and protruding, saliva constantly dripping, lips protruding and thick, neck short and thick, with swelling in front of each sterno-mastoid muscle. The child could not hold up its head or move its limbs or take notice, and seemed idiotic. Fontanelles open ; skull bones soft. Length of child, twenty-four inches. The arms and legs were short in comparison with the size of the head and body, and somewhat swollen at the epiphyses ; the swelling was not painful or soft, nor were there any other indications of *rhachitis*. The diagnosis thus lay between sporadic cretinism and some other form of idiocy. Thyreoid treatment was begun on September 15th. By the mother's mistake a dose of five grains was administered for three days. At the end of this time the tongue and lips had gone down, the circumference of the neck became two inches

less, the swollen abdomen three inches smaller, and the child began to sweat freely. Poisoning symptoms, however, set in, with a temperature of 102° , and prostration, sleeplessness, restlessness, and constant moaning for nearly a week, at the end of which time the entire body desquamated, the dusky skin peeling off and leaving a clear white skin. Within two weeks the umbilical hernia disappeared. On November 24th, after two weeks' treatment (one grain daily), the intellect had brightened, facial expression changed, and two lower teeth had been cut. She appeared like a child a year old. January 5th : Eyes bright, cheeks red, face intelligent ; beginning to talk ; sweats freely. There has been steady gain in weight, which is now nineteen pounds ; also in length—eight inches since September. February 2d : Improvement and gain in weight continue, and child's appearance is normal. She has nine teeth.

To understand the ætiology of cretinism in general, we must study heredity. A hereditary taint or faulty tendency may manifest itself in three forms : (*a*) As a local bodily defect ; (*b*) as a defect in growth, general or local ; and (*c*) as a defect in "general vitality," physical or mental. More than one of these forms may be present in one person, as often happens in criminals, epileptics, etc., and typically in the "degenerate," with whose erratic mentality are combined physical stigmata—both expressions of hereditary taint. Now, heredity is one of the chief causes producing individual cretinism. Endemic cretins are always the issue of parents who have goîtres ; thus, a thyroid gland, in some way abnormal, is a hereditary local deficiency, manifesting itself as cretinism in the children of those that are not cretins but merely goïtrous. It is improbable, though not absolutely disproved, that drinking water has any causative influence. Struma, cretinism, and deaf-mutism are all closely associated, and probably all depend on the same cause—heredity.

The chief physical characteristics of Swiss cretins are their large heads, dolichocephalic or brachycephalic ; thick, short necks ; eyes wide apart, frequently with strabismus ; general stunted bodies, hardly three or four feet high ; idiotic appearance ; thick myxœdematous skin, pale or discolored ; thick puffy lips and cheeks ; thick, protruding tongues, and prominent ears. They may have goïtres, but usually present atrophy of the thyroid. According to the degree of this atrophy they are either (*a*) complete cretins, absolute idiots, or (*b*) half cretins, with mind limited to their senses, or (*c*) a cretinoid variety, atypical, with some mental and physical development.

Where cretinism is not endemic, occasional sporadic cases occur ;

mentally they resemble other forms of idiots, but are to be distinguished from them by slight or marked bodily changes due to the myxœdematous process. This process, as observed following thyroidectomy or atrophy of the thyreoid, embraces the following changes : (a) A general disturbance in nutrition ; there is first a general increase in the bulk of the body, due chiefly to the infiltration and thickening of the subcutaneous tissues. This infiltration has been thought to be one of mucin. However, mucin is found in minute quantities in normal connective tissue, its quantity in developing connective tissue being about twice that in fully formed connective tissue, since the former contains more basement substance ; now, since the connective tissue in myxœdema also contains an excess of basement substance, this, rather than an especial mucoïd infiltration, would explain the excess of mucin present. Moreover, the excess of mucin is less marked later in the disease when the connective tissue is replaced by white fibrous tissue and fat. (b) Alteration of the blood occurs, resulting in cachexia ; the red cells and hæmoglobin are diminished ; regarding the leucocytes, observations vary. (c) The temperature, after primary elevation, remains subnormal ; in experimental cases, artificial heat is necessary to maintain life. (d) Acute or operative cases, and occasionally chronic cases, show nervous symptoms, such as fibrillary tremors, cramps, tetany, convulsions, or motor paralysis. We conclude that all these changes result from some form of poisoning of the system due to suppression of the thyreoid secretion.

In the case of a young infant the ordinary symptoms manifested in an adult will be modified by the immature condition of its tissues : (a) In place of dullness and apathy there will be idiocy, not to be distinguished in itself from other forms of idiocy. (b) The œdema and swelling of the subcutaneous tissue in face, tongue, lips, and cheeks will be more marked ; pseudo-lipomatous masses, swollen belly, and umbilical hernia are also common in children. (c) A general change in the bony framework of the body causes a great contrast between infant and adult myxœdema, manifested in the peculiar shape of the skull, short, thick extremities, spinal lordosis, *retroussé* nose, and general dwarfed appearance. The cause of these bone changes in cretinism we do not understand ; histologically, they are quite characteristic and distinct from the changes occurring in other bone diseases. The cartilage cells become irregular, the capsules swell, many cells shrink or disappear, and the ground substance may become liquefied in places. Thus ossification *in cartilage* is stopped, and growth in a longitudinal direction ceases ; most

marked is the change at the junction of the epiphyses and shaft where fibrous connective tissue seems to appear around the epiphyses. But ossification of bone *from membrane*, and especially from the periosteum, is exaggerated, and the bones may become abnormally thick. In a series of rabbits subjected to thyroidectomy the chief change in the bones was delay of ossification in cartilage, the longitudinal development of the bone being affected while the thickness was not much changed. The skull and jaw were least altered. No myxœdema was found; a peculiar enlargement of the hypophysis cerebri was noted. In two children growth ceased after thyroidectomy. Thus the slow growth and peculiar shape of the extremities in cretins depends upon the failure of cartilaginous ossification. The premature ossification of the bones at the base of the skull, since here ossification is membranous, depends upon cretinism. Many cases of foetal rickets would seem to be really cretinism.

Horsley thus classifies *sporadic* cretinism : (a) Congenital cretins, with no thyroid, of typical appearance and with well-advanced changes, who usually die at birth. (b) Cases in which the process began before birth but which have some thyroid, possibly goitre, and develop more slowly. They generally have myxœdema and very little intelligence. (c) Cretinism developing in early childhood. There may be no signs until from the second to the fifth year. These cases much resemble adult myxœdema with cessation of growth. There is progressive thyroid atrophy.

The ætiology of sporadic cretinism is often very obscure. Any cause operating to produce a defective infant may manifest itself in this way. In a number of cases one of the following facts has been noted : (a) In several cases the cretin was the first child of young parents. (b) One or both parents were neurotic, or (c) possessed a marked alcoholic taint. (d) Other children in the same family had some other nervous disease or some marked stigma. (e) A brother or sister was a cretin. (f) Close intermarriage of parents (one case). (g) Bad hygiene, as in the slums of Edinburgh, where the disease seems almost endemic. Many cases, however, present a strictly negative family history. Some of these are probably cases of atavism from unknown cause. In others the probable explanation is an unnoticed intercurrent disease of the thyroid, either primary or as a complication or sequela of other diseases, especially the acute infectious fevers.

In conclusion, the symptoms of cretinism are to be explained as the result of the myxœdematous process in the undeveloped tissues

of an infant. To understand it we must study it with reference to heredity, taking into consideration not only general diseases of the parents, but all possible stigmata and bodily and mental abnormalities, which may appear in the different members of the family in its various branches, if possible, in three generations.

OBSTETRICS.

GREAT BRITAIN.

Bullet Wound of the Pregnant Uterus.

A. W. PRICHARD (*British Med. Jour.*, February 8, 1896) reports the case of a woman, aged twenty-eight years, at seven months' gestation who was shot by her husband in the abdomen. The entrance of the bullet was three inches below and two inches in front of the right anterior superior spine of the ilium. There was no hæmorrhage; foetal heart heard; probe could not reach the bullet. Eleven hours afterward the patient showed signs of peritonitis. A bruised spot was seen on the opposite side of abdomen, from which the bullet was extracted, half an inch above and five inches behind the left anterior superior spine of the ilium. The same evening an exploratory incision was made, and the uterus was found perforated; also three coils of intestine. The uterus was opened and a dead foetus removed, the bullet having passed through both the foetus and placenta. A Porro operation was done with the pedicle outside the peritoneal cavity, the intestinal wounds closed, the abdomen cleaned, and drainage tube inserted. Patient did well until the sixth day, when she became collapsed and died. Autopsy showed septic peritonitis chiefly at three or four foci, especially at the entrance and exit wounds of the bullet. These should have been excised and drained, but were not. The bullet entered the foetus to the right of the spine at the eighth rib, passing through the pleura, diaphragm, and liver, and came out at the costal cartilage.

The Third Stage of Labor.

A. H. F. BARBOUR (*ibid.*) says, from the study of uteri removed by Porro's operation, that the placenta does not separate until the commencement of the third stage of labor; that its texture is such that it

can accommodate itself to the shrinking of its side until the uterus contains nothing but placenta without separation taking place; that there is no empty space in the uterus into which the placenta could bulge; and that there is not sufficient evidence to support the view that retroplacental hæmorrhage is a factor in its separation. This view is borne out by the frozen sections of Pinard and Tarnier, the chief points of interest being the great diminution in area of the internal surface of the uterus with non-separation of the placenta even at the lower segment. The thickening and folding of the placental tissue shows how the placenta accommodates itself to the reduction of its site. At the commencement of the third stage we have the placenta yet unseparated, although the site may be but one fourth of the area it covered in pregnancy, and the uterus embracing the placental mass on all sides, there being no empty space in the uterus.

Clinical Importance.—1. It explains the well-known fact that patients do not bleed until the third stage has begun, refuting the theory that separation occurs during the second stage.

2. It gives us a rationale of the arrest of hæmorrhage—viz., that the process of retraction means a complete rearrangement of the muscular network through which the vessels pass, implying constriction or ligation at various points. As this retraction and constriction has taken place largely before the placenta has separated, shown by its shrunken and bulged condition, the vessels are therefore ligated before the placenta is amputated.

3. Shrinking of the placental site beyond which the placenta can follow it, a limit which must be reached during the third stage of labor. The contractions of the uterine wall force the placental mass onward toward the point of least resistance, as it forced the foetal mass onward in the second stage of labor.

AUSTRALIA.

Puerperal Septic Diseases.

E. S. JACKSON, of Brisbane, Queensland (*Intercol. Med. Jour.* of Australasia, February 20, 1896), says that puerperal fevers can only be exactly classified when we can classify the various bacteria to which they owe their origin. Among causes we must admit auto-infection, since the vagina often contains these bacteria. Generally, however, they are introduced from without from lack of antiseptic precautions. The most rapidly fatal cases are due to streptococci. Staphylococci seem to be less virulent. The gonococcus seems to

produce tubal suppuration and pelvic peritonitis rather than high temperatures and general peritonitis, and chronic rather than acute cases. Faulty sanitation can hardly cause puerperal sepsis, though it may render the system less resistant. The most important consideration with regard to these cases is prophylaxis. In each case we must seek the cause. While in general antiseptic precautions may be taken, an occasional or habitual neglect of some small detail may result in a single case or a series of cases of sepsis. For a midwifery bag a metal case should be substituted which can be boiled with the instruments. Both should be boiled before and after using. The hand should be cleansed not only with soap and nailbrush, but also with a strong antiseptic solution, either permanganate or bichloride. The douche, vaginal or uterine, after an ordinary labor and in the hands of the average nurse, seems more dangerous than otherwise. With antiseptic precautions it does not seem necessary to cease attending confinements after having a case of puerperal sepsis.

The treatment of cases is as follows: If on first examination the temperature is 101° to 102° F., there is tension or tenderness of the abdomen, with offensive bloody discharge and a patulous os, the uterus is curetted with a blunt curette, washed out with boric-acid solution, and the interior cauterized with pure carbolic. After this ergot is given for several days, and the vagina is irrigated every four hours. Curettage is not done if the discharge is not bloody lest it open the blood-vessels to general infection. The indications are: (1) To keep the uterus contracted and therefore empty. (2) To keep its blood-vessels closed. (3) To keep the vagina clean and free from discharge. Ergot meets the first two indications, the vaginal douche the third. Further intra-uterine applications are to be deprecated, and there should be as little vaginal examination as possible.

With regard to infection of other organs than the uterus, cases of septic infection which have led to general peritonitis are rarely amenable to treatment; but cases which develop pyosalpinx or collections of pus limited to the pelvis, generally recover if left until they either open spontaneously or point so near the surface that a mere incision through skin or mucous membrane is sufficient to reach them. In view of these facts, major operations for these collections of pus, while demanded in certain cases, seem often done unnecessarily, and should be performed only after careful consideration.

ITEM OF INTEREST.

The date of the opening of the Second International Congress of Gynæcology and Obstetrics has been positively fixed for Monday, August 31st. The Congress will continue one week, closing Saturday, September 5, 1896.

The success of this scientific reunion seems now to be assured. The eminence of the honorary presidents, the scientific prominence of the referees, and the number of members who have now joined guarantee its success.

The sessions of the Congress will take place in the Grand Hall of the Aula of the University. The First General Session—that of the morning of the 1st of September—will be honored by the presence of the President of the Swiss Confederation as well as of the Chief of the Department of Public Instruction of the Canton of Geneva, who will inaugurate the Congress by addresses.

Morning Sessions will continue from 9 A. M. until noon. *Afternoon Sessions*, from 3 to 6. The former will be devoted to the discussion of the official question, the latter to other communications. In order to make the first most interesting, the Committee of Organization will endeavor to publish and distribute among the members the synopsis or the “conclusions” of the work of the referees. Manuscripts must be delivered to the secretary of the referees. Manuscripts must also be delivered to the secretary at the end of the session at which they are read, and members taking part in the discussion must also present to the secretary a synopsis of their remarks.

An International Exposition of Gynæcological and Obstetrical Instruments will be opened during the Congress, and all objects entered for this Exposition should arrive in Geneva prior to August 10th, addressed, “University, Rue de Candolle, Geneva.”

Members are advised also that as our Congress coincides with the National Exposition of Switzerland, it will be prudent to engage rooms in advance. For that purpose you may address as below: La Commission officielle des logements ayant son bureau a la gare de Cornavin.

Members of the Congress arriving in Geneva without being inscribed can still obtain a membership card, Sunday morning,

August 30th, and thereafter in the office of the treasurer of the University.

Ladies' cards will be issued admitting to the receptions and festivities.

PROGRAMME.

Monday, 3 P. M., Reunion of the Permanent Committee and of the Founders of the International Congress. At 9 P. M., Reception at the Palace Eynard.

Tuesday, Opening of the Congress by President Reverdin. Address by President Lachenal. Addresses by Mons. Richard, Chief of the Department of Public Instruction and Official Delegates.

3 P. M., Discussion of the First Official Question—viz.,

Treatment of Pelvic Suppurations. Referees, Sängér, Kelly, Bouilly.

Discussion by A. Martin, Richelot, Lawson Tait, Jacobs, Delettretz, Henrotin, Hartman, Rouffart, Tournay, Henrotay, Desguins, Guilloud, and Caromilas.

Wednesday, Discussion of the Second and Third Official Question,

Surgical Treatment of the Tetro-deviations. Referees, Kustner, Polk, and Pozzi.

Discussion by A. Martin, Bouilly, Lawson Tait, Jacobs, Edebohls, Gill Wylie, Henry Byford (Chicago), Delettretz, Stapfer, Paul Pettit.

Most Successful Method of closing the Abdomen. Referees, Granville Bantock, La Tarre.

Discussion by Messrs. Lawson Tait, Richelot, Jacobs, Edebohls, Gill Wylie, Byford, Delettretz.

3 P. M., Miscellaneous Papers.

Thursday. This day will be devoted entirely to promenade on the lake at Vevey, and excursions to Montreux-Chillon.

Special programme will be distributed indicating the details of this excursion.

Friday, Discussion of the Fourth Official Question,

Relative Frequency and most Common Forms of Pelvic Contractions in Different Races, Groups of Countries or Continents. Referees, Fancourt, Barnes, Dohrn, Fochier, Kufferath, Lusk, Rein, Pawlick, Pestalozza, Treub.

Discussion to be opened by Berry Hart.

3 P. M., Miscellaneous Papers.

Saturday, Discussion of the Fifth Official Question,
Treatment of Eclampsia. Referees, Charles, Charpentier, Halbertsma, Mangiagalli, Veit, Parvin, Byers.

Leaders in *Discussion*, Tarnier, More Madden, Lindfors, Godson.

3 P. M., Miscellaneous Papers.

5 P. M., Closing Business Session.

8 P. M., Final Subscription Banquet.

Sunday, various excursions; international regattas, fireworks, etc.

President: AUGUSTE REVERDIN.

Gynæcology: C. BETRIX,	} <i>Secretaries.</i>
Obstetrics: CORDES,	

OFFICIAL DELEGATIONS.

Ministry of Public Instruction in Fine Arts of the French Republic: Dr. Charpentier, member of the Academy of Medicine.

Ministry of Public Instruction of Spain: Dr. E. Gutierres, of Madrid; Dr. Planellas, of Valencia.

British Gynæcological Society: Drs. Granville Bantock, Traversers, Fancourt Barnes.

Gynæcological and Obstetrical Society of Moscow: Dr. M. de Strauch.

Royal Academy of Madrid: Dr. De Cortejarena.

American Gynæcological Society: Drs. Baldy, Polk, Kelly, Edebohls, Krug, Lusk, Parvin, Sutton, Etheridge, Henrotin.

American Association of Gynæcology and Obstetrics: Drs. MacMurtry and Reed.

Academy and Laboratory of Catalogued Medical Sciences: Dr. M. A. Jargas.

Medical Pharmaceutical Academy of Barcelona: Dr. Sebastian Requersens.

Spanish Gynæcological Society: Dr. Eugenio Gutierrez.

Medical Institute of Valencia: Dr. Alexandro Planellas.

THE
AMERICAN GYNÆCOLOGICAL
AND
OBSTETRICAL JOURNAL.

SEPTEMBER, 1896.

SOME UNUSUAL CASES OF OBSTETRICS.*

BY ERVIN A. TUCKER, M. D.,

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Maternity Hospital, Blackwell's Island, New York.

As the old saying that "variety is the spice of life" is generally accepted to be true, I have ventured to make application of that truth by making a diversity of subjects an important factor in the selection of the cases contained in the paper which I have the honor of presenting to this Society to-night. It occurred to me that, by presenting to you several unusual cases of obstetrics, greater interest could be elicited and a better chance given to the Fellows for comments and the relation of like cases than could be obtained by preparing a paper upon a single subject. As I narrate these histories to you, I am sure that many points in diagnosis, prognosis, and treatment will occur to you from your experience with similar cases, and I hope that these points will be fully brought out afterward in the discussion.

The following nine cases have been selected, not because of great rarity, but because of some especially interesting feature which each case illustrates, and which may be properly regarded as typical of the class of events to which the case belongs. I will now describe these cases in the order in which they occurred:

* Read before the New York Obstetrical Society, May 19, 1896.

CASE I. *Hæmorrhage from Laceration beneath the Clitoris.*—This patient was II-gravida, English, aged twenty-nine years. Her first child was born at full term without special difficulty. This second child, also at full term, was born after a first stage of nine hours and fifty minutes and a second stage of fifty minutes. The head was born a little too rapidly during a strong pain, in spite of efforts to make the advance slower. Immediately after the birth of the head a copious flow of blood began just above the child's neck. Delivery of the body was hastened by pressure upon the fundus, as the hæmorrhage continued to be profuse. As soon as the child was out of the way, examination showed a tear, beginning in the anterior vaginal wall, running to the right of the meatus urinarius, then upward to the median line as far as the clitoris. This laceration was over an inch long and very deep; at its upper part a finger in the wound seemed to come directly upon the pubic bone. The whole torn surface bled profusely, while from an artery a good-sized jet spurted. Digital compression diminished the bleeding till artery clamps were obtained; several of these were applied, and compression made upon the rest of the torn area. A few minutes later the clamps were tied off, but hæmorrhage began afresh as soon as the compression was diminished, so the entire laceration was sutured with catgut—one suture below and four above the meatus, thus controlling the hæmorrhage. The passage of a catheter showed that the urethra was not occluded by any of the deeper sutures. The total blood loss from this laceration was estimated to be at least thirty ounces.

The perinæum was torn a little on the left side, while this anterior tear was on the right side. The original position of the head was R. O. A. So it is noteworthy that all of the tearing was in the direction of the long diameter of the head. The child weighed eight pounds thirteen ounces, and the head measurements were large.

This tear in the vestibule healed by primary union, except in one small spot, which granulated. Urination was spontaneous after the first four days.

CASE II. *Continuance of Pregnancy in Spite of Accidents.*—The previous pregnancies of this patient, an Irishwoman, aged twenty-six years, had ended in abortion at four and at two months and a half. In this, her third pregnancy, she went to full term, and gave birth to a child weighing six pounds twelve ounces after two accidents,

which make it remarkable that she did not again abort—a good illustration of the tenacity with which a healthy ovum holds on to the uterine wall.

This patient suffered so much that she was admitted to a hospital for treatment. The following notes are taken from the report of a clinic given in the New York Hospital by Dr. E. L. Partridge, February 16, 1891: "During the last week of January, 1891, this patient began to have sharp pains in the lower part of the abdomen. These have continued till to-day. She is constipated, and fecal movements give her pain. She urinates frequently, and this act is accompanied by burning pain and a feeling of tenesmus. On vaginal examination with finger directed forward, I come upon the cervix, which is soft; with the finger directed backward, I feel the bulging posterior wall of the uterus. The diagnosis is *retro-versio uteri* accompanying pregnancy." Dr. Partridge replaced the uterus by drawing down the cervix and tamponing the posterior fornix, while the patient was kept in Sims' position and with the foot of the bed raised. Pregnancy was about three months advanced when this complication was relieved.

Four months later—i. e., when she was about seven months pregnant—this patient was run over by a team of horses; she was knocked down and one of the horses stepped upon her, bruising the left side of the abdomen and her left leg and arm. Marks of these injuries were still visible when I first saw her, about two weeks after the accident. She said she had not felt the child move since the accident, and I could detect no foetal heart sounds; the breasts were very flabby; patient said they had become so since she was run over; contents of the uterus were boggy to the touch, and the outlines of the foetus indistinct. All these signs certainly pointed to probable death of the foetus as a result of the accident, but, before deciding upon this diagnosis, I tried again (two days later) to hear the foetal heart, and this time succeeded. About six weeks later she gave birth to a full-term living child after a normal labor of ten hours.

CASE III. *Congenital Ventral Hernia; Operation; Death.*—The mother of this child was I-gravida, Irish, aged twenty-two years. The child was premature (eight months), and weighed four pounds twelve ounces. It was born deeply asphyxiated after a labor of six hours in the first stage and twenty-four minutes in the second, but was resuscitated after twenty minutes of hard work. Examination

showed a ventral hernia, 4.5 centimetres in diameter at its base and 14.5 centimetres in circumference, situated in the median line, lying mostly above the navel—*i. e.*, the cord appeared to be inserted at the lower part of the tumor. The hernial sac was composed of peritonæum, covered by amnion, which was continuous with the amnion of the cord; this sac was so transparent that its contents could be readily seen.

The cord dropped off on the seventh day. The child nursed well and gained a few ounces in weight, but at the end of two weeks the edges of the hernia, where the amnion joined the skin, began to show signs of infection, though all possible care to keep the parts clean had been taken; the surface of the hernia had lost its shining appearance, and had become opaque and shriveled. This little patient was seen by Dr. J. W. McLane and Dr. Charles McBurney; they decided that an operation would give the child a better chance than it would have if the suppuration about the edges of the hernia was allowed to continue.

Dr. McBurney operated upon the child in Roosevelt Hospital, February 18, 1892. An incision in the median line at the top of the tumor showed that its covering of peritonæum and amnion was firmly adherent to the surface of the liver, which formed the larger part of the tumor; this covering was also adherent to a coil of intestine which occupied the lower part of the sac. Incision was then made on the right side, and extended all the way around the hernia at the point where the skin and hernial covering met. The covering was then stripped off, leaving the surface of the liver raw and bleeding. Liver and intestines were extruded, but were returned into the abdomen after considerable unavoidable manipulation. Sutures through the thickness of the abdominal wall brought the edges of the wound together, and other sutures brought the skin into close apposition.

The child seemed to bear the operation and chloroform well. It was freely stimulated by the mouth and by the rectum. On the second day it retained breast milk and seemed to be doing well, but on the third day it began to fail, and died eighty-five hours after the operation.

Dr. J. W. Brannan, who performed a necropsy, sent the following report: "On opening the abdominal cavity the intestines were found matted together by fibrin. The liver was closely adherent to the abdominal wall in front and to the diaphragm above. Separa-

tion of the liver from the abdominal wall revealed an abscess containing about a drachm of pus. The abscess cavity was bounded by the diaphragm above, the intestines below, and the liver and abdominal wall on either side. The right lung showed patches of broncho-pneumonia. All other organs were normal."

Considering that the child was premature and weighed less than five pounds at the time of the operation, and that considerable blood was lost from the surface of the liver, which was necessarily badly lacerated because of the adhesions, it is remarkable that the infant lived as long as it did after the operation. In another similar case it would certainly seem advisable either not to operate at all or to operate very soon after birth, before the liver could become adherent and before the edges of the hernia could become infected, as they are prone to do sooner or later.

CASE IV. *Rupture of Child's Lung during Birth.*—This was the second child of a Frenchwoman, aged twenty-seven years. It was born breech first (L. S. A.), after a labor of thirteen hours and twenty minutes in the first stage and ten minutes in the second. Its weight at birth was seven pounds thirteen ounces. The mother's pelvis was flattened a little, and the delivery was therefore rather difficult. After the shoulders had entered the pelvic cavity, both arms were found to be extended; considerable but not excessive force was necessary to bring the arms down and out. Strong traction was then made upon the legs and shoulders, while pressure was applied to the fundus, till finally the head slowly passed through the narrow brim. The occiput rotated posteriorly into the hollow of the sacrum. The body of the child was raised, the chin made to hook under the pubic arch, and the occiput brought over the perinæum, so that, when birth had been completed, the child lay face downward on the mother's abdomen. Thus the largest diameter of the head which passed the pelvic outlet was the submento-occipital. The child was easily revived from its slight asphyxia, and seemed to be in good condition.

Forty-five minutes after the birth I was called by the nurse to see a swelling on the left side of the child's neck. When first noticed, this swelling was about the size of a quarter dollar in circumference, and only slightly raised above the surrounding parts; but it grew rapidly in size and prominence till it reached to the jaw above, to the clavicle below, to the trapezius behind, and gradually extended in front beneath the chin and over a little to the right side.

Distinct crepitus could be easily obtained at any part of this swelling. As this emphysema increased, the respiration became slower and feebler, and finally ceased one hour after birth. The heart continued to beat for several minutes after respiration ceased.

An eminent surgeon, who saw this case a half hour after the child died, expressed the opinion that death was due to rupture of the lung, which had taken place during the difficult delivery; but Drs. Van Gieson and Becker, who made a necropsy, gave this report: "Anterior mediastinum was filled with air bubbles, which extend down over the anterior pericardium. Lungs removed and inflated under water, but no rupture was made apparent by the escape of bubbles." The rupture in this case was probably subpleural, and a pneumothorax did not develop.

Many times before this accident happened I had used as much force in delivering the arms and head, and since then I have repeatedly used even more force than in this case, but without a similar bad result.

CASE V. Full-term Delivery after Hysteropexia.—Patient was II-gravida, native of the United States, aged thirty-three years. At the birth of her first child (six years previously) the cervix and perinæum were badly lacerated. One year after this birth the cervix was amputated. Two years later hysteropexia was performed by Dr. Florian Krug in the German Hospital; he also repaired the perinæum. The result of these operations was excellent, as there was no return of former symptoms. When this patient first came under my observation in December, 1893, she had reached full term, and gave birth to a child weighing six pounds two ounces after an easy normal labor of thirteen hours. The uterus contracted well after the birth of the child and after birth of the secundines. Had it not been for the presence of two old suture cicatrices about an inch above the symphysis pubis, no one would have suspected that the uterus was attached to the anterior abdominal wall. The uterus made as rapid an involution as any I have ever seen. An examination two weeks after delivery showed that the uterus was anteflexed and movable to a moderate extent, though its attachment to the anterior abdominal wall could be distinctly made out.

CASE VI. Congenital Depression of the Skull.—The mother of this child, an I-gravida, native of the United States, aged nineteen years, gave the following pelvic measurements: Distance between spines, 26 centimetres; between crests, 27 centimetres. Right oblique,

21.25 centimetres. Left oblique, 21.25 centimetres. External conjugate, 16 centimetres. Diagonal conjugate, 10 centimetres. This gave an estimated true conjugate of 8.5 centimetres. When the second stage began, the position was exactly O. R.—*i. e.*, the occiput to the right. The second stage lasted thirty-one minutes, and the head was born with the usual R. O. A. mechanism. Examination of the head immediately after birth showed the posterior part of the right temporal region to be markedly depressed; the depressed area involved the anterior lower part of the right parietal bone and the upper part of the squamous portion of the temporal



No. 3538.—Depression of right temporal region.

bone. It is noteworthy that this child was born naturally, that it was alive and in good condition at its birth, and that it continued to live without manifesting any symptoms due to the depression. Had this been a forceps delivery or a breech birth, it would have been easy to ascribe this depression to the method of delivery rather than to long-continued pressure of the head against the sacrum, as was really the case. (See photograph No. 3538.)

CASE VII. *Rudimentary Fingers; Absence of Hand.*—This child, born prematurely (at seven months), and weighing two pounds four

ounces and a half, presented the abnormality of having no left hand, but what may be called rudimentary fingers were developed upon the stump of the forearm. Arrest of development is the probable explanation of this malformation. The child was very feeble at birth, and lived only a few hours. This was the seventh pregnancy of its mother, a Bohemian, aged thirty-three years. Attention may be called to the abundant lanugo, which the photograph shows unusually well. (See photographs, No. 4367, A and B.)



No. 4367A.—Absence of left hand ; rudimentary fingers.

CASE VIII. *Intra-uterine Amputation of Right Arm.*—The clavicle and scapula on the right side of this child seemed to be normal, but the rest of the right upper extremity was absent. A little fleshy knob projected from where the arm ought to be, but there was no development in this knob. All other parts of the child were normal. The mother was French, aged twenty-three years, and had had one normal child. I have ventured to call this an “intra-uterine amputation” from the fact that the child was born with a stump which,

I am sure, any surgeon would have pronounced a fine amputation result, but of course it is possible that this is only another case of arrest of development. The liquor amnii was carefully searched for remains of the missing arm, but nothing of that nature was found. (See photograph No. 1144.)

CASE IX. *Abnormal Attitude before Podalic Version.*—The patient was Hungarian, 1-gravida, aged twenty years. The first stage lasted twenty-four hours, with fair pains. The position had been made out by palpation to be oblique with the head in the right iliac



No. 4367B.—Rudimentary fingers.

fossa; but as soon as the second stage began and the membranes were ruptured, the right shoulder was found to be presenting, and a few seconds later the right arm and a loop of cord prolapsed into the vagina. The administration of chloroform was begun at once, while the cord was protected from pressure with the whole hand in the vagina. As soon as the patient was deeply under the anæsthetic, the hand (left) was carried up into the uterus to do a version. The discovery was then made that the attitude of the foetus was

abnormal to a marked degree; the position had evidently been L. O. A. originally (this was the diagnosis of position when the patient was admitted to the hospital a month before labor), but for some reason the neck had become twisted and the head pushed off into the right iliac fossa, so that the face looked to the right anterior, while the right shoulder was forced down till it presented at the brim, and the rest of the body remained as if the position were still L. O. A.—*i. e.*, the back was still turned toward the left anterior. This abnormal attitude and the firm contraction of the uterus around

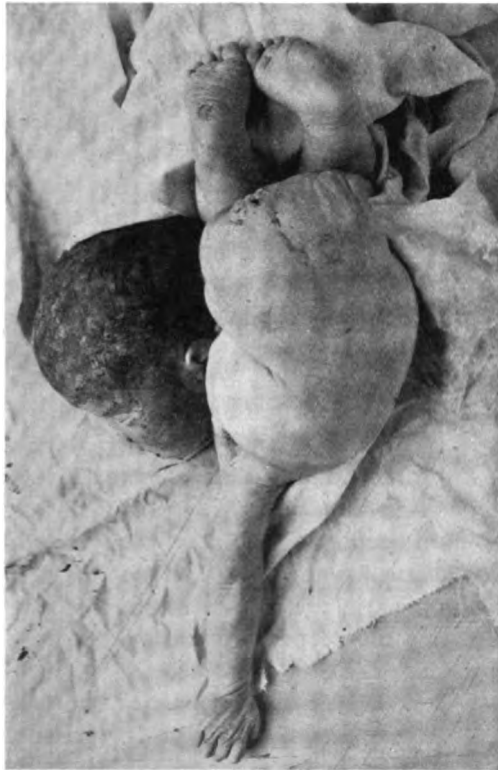


No. 1144.

the foetus made the version unusually difficult, but finally the right knee was seized and the version completed. The left leg became extended in front of the body, and was so born. Both arms were extended, but were easily brought down. From the beginning of the version to the birth of the breech only four minutes elapsed, and the head was delivered by the Smellie-Veit method about a minute later, but the child was so deeply asphyxiated that it could not be revived. If the child had not been small (six pounds), I

doubt if version could have been done. The special features of this case, to which I wish to call your attention, are the difficulty in diagnosis due to the abnormal attitude and the difficulty in performing version under such circumstances. (See photograph No. 95—child replaced in attitude as it was before version.)

In conclusion, I wish to add that the first eight of these cases,



No. 95.—Shoulder presentation ; abnormal attitude.

which occurred during my service in the Sloane Maternity Hospital, are reported to you through the kind permission of Dr. J. W. McLane, the visiting physician of that hospital. With the last case, which occurred in my service at the Maternity Hospital, Blackwell's Island, I was materially assisted by Drs. Taylor and Ludbrook of the City Hospital staff.

57 WEST FIFTY-THIRD STREET, NEW YORK.

A CASE OF NEPHROTOMY FOR PYELONEPHROSIS.*

BY FRANK W. TALLEY, M. D.,

Adjunct Professor of Gynæcology in the Philadelphia Polyclinic, etc.

Among the ancients operations upon the kidney were performed for the opening of abscess pointing in the loin and the removal of stone which had occasioned the suppuration. Nephrotomy was recommended by Hippocrates for the removal of nephritic calculus "should the parts swell and become elevated," and various writers are quoted by Mr. Turner in his *Art of Surgery*, published in London in 1727, to show that surgeons in very early times were familiar with lumbar nephrotomy. It is probable that nearly if not quite all these operations were for the evacuation of abscess of the kidney caused by the stone, and which was pointing in the loin. The earliest case reported of operation upon an approximately healthy kidney was that of a French archer, who, being under sentence of death and suffering from a kidney trouble, was delivered up to the Faculty of Paris for experimentation. The kidney was cut down upon and a stone removed. The patient recovered, and lived many years afterward in good health. This is related by Mezerai, in his *Abrégé chronologique de l'histoire de France*, as occurring in 1680.

Operations upon the kidney are now so common that the mere report of a case of nephrotomy for pyelonephrosis would require an apology. My object in presenting it is to consider the ætiology of pyelonephritis and the proper surgical methods of its treatment. The history of the case is as follows:

Agnes B., aged twenty-two years, married two years and a half; two children, eldest two years, youngest seventeen days. Father died of phthisis; mother living and well; brother died of phthisis four months ago. After the birth of the first child the bladder was emptied by catheterization, and the patient subsequently developed cystitis. Some months later, for the relief of this, she entered St. Agnes' Hospital, and after nine weeks had improved sufficiently to leave the institution. During the following year the bladder was irrigated at frequent intervals, and she regained her health and strength, although the urine still contained a trace of pus. Shortly

* Read before the Philadelphia Obstetrical Society, June 4, 1896.

after she again became pregnant, and, as the bladder gave her no discomfort, fearing the treatment might cause her to abort, she ceased to present herself for local treatment.

About ten days before term the patient again came under observation. She was weak and emaciated, and complained of severe pain in the left loin, radiating into the groin. This pain had occurred in the early months of her pregnancy, and had been persistently growing more severe. The urine was the color of milk. The labor was uneventful, occurring at midday. In the evening following, the pain in the side became so severe that very large doses of morphine were required to give relief. During the lying-in the patient emaciated and the debility increased. There were occasional creeps, prostrating sweats, but no chills. On palpation a large oval tumor, tender to the touch, could be outlined projecting into the abdominal cavity in the left lumbar and hypochondriac regions. The urine passed was about twenty ounces, precipitating about one third its volume of pus, and containing a large amount of albumin and hyaline casts. At this time she was seen by Dr. William H. Parish, who agreed with me in the diagnosis of pyelonephrosis, and in the advisability of draining the kidney until the patient could be got into better condition for its removal.

November 1, 1895, patient entered the Polyclinic Hospital, and on the following day lumbar nephrotomy was performed. The patient was placed in the semiprone position, with a pillow under the abdomen, to widen the interval between the last rib and the crest of the ileum as much as possible. An oblique incision was then made from just below the lower border of the last rib to the outer border of the erector spinæ muscle, and carried downward and forward toward the crest of the ileum for about three inches. The incision was carried through the subcutaneous fat and the outer layer of muscles, the deeper muscles, and lumbar aponeurosis, till the perinephritic fat was exposed. This was torn apart, revealing the smooth surface of the kidney. The incision was then continued through the kidney as it presented at the bottom of the wound, and about three ounces of greenish-yellow, creamy pus evacuated. Some pus pockets were then opened with the finger, and the pelvis of the kidney explored. The kidney was then flushed out with some warm antiseptic solution, and a rubber drainage-tube introduced through the loin into the pelvis of the kidney and the wound closed on either side with interrupted sutures introduced deeply. Union

by first intention took place. The treatment consisted in daily copious irrigation through the drainage-tube with permanganate-of-potash solution and tonic and supportive general treatment.

The notes on the hospital register, for which I am indebted to the resident physician, Dr. Schreiner, were as follows:

Eleventh Day after Operation.—Patient has improved steadily, has neither pain, night sweats, nor chills. Examination of urine shows about one half volume of albumin, some broken-down pus corpuscles and *débris*.

Eighteenth Day.—Patient sits up daily, and has walked some; irrigation through drainage-tube continued.

Twenty-fifth Day.—Urine clear and albuminous; no sediment; specific gravity, 1004; pale. Pyoktanin experimentally injected into the fistula is recognized in the bladder urine.

Twenty-seventh Day.—Patient left hospital, fistula in loin discharging urine. Patient still pale and anæmic.

Urine passed *per urethram*.

Second day.....	27 ounces.
Eighth day.....	29 “
Twentieth day.....	56 “
Twenty-eighth day.....	60 “

After leaving the hospital the patient failed to gain in strength, and, although the urine remained clear, again took to her bed, and died on January 2d, two months after the operation.

The cause of suppuration in the pelvis of the kidney is undoubtedly the presence and propagation of a bacillus. This bacillus gains access to the kidney either through the blood current or by extension through the ureter from an infected bladder. That the blood may be a carrier of the infecting germ is proved by Albarran, who injected his bacterium into one ureter, ligating it below, and found both kidneys implicated, the one side because of direct infection, and the other side because of hyperactivity in having more work to do (J. Albarran, *L'Infection urinaire et la bactérie pyogène*, *Bull. Soc. Anat.*, December 28, 1888, p. 1028). The mere presence of a germ, however, is not sufficient to produce the disease. Guyon and other observers have injected pure cultures of bacteria into the bladders of animals and have failed to cause cystitis unless the bladder be wounded or the urethra ligated. They have also proved by experiment that the ligation of the urethra and wounding of the bladder will not produce cystitis unless the germ be added (F.

Guyon, Sur les conditions de réceptivité de l'appareil urinaire à l'invasion microbienne; Acad. des Sci., Paris, 1889, C. viii, 884. Note sur la réceptivité de l'appareil urinaire à l'invasion microbienne; Acad. des Sci., April 29, 1889). Albarran injected his bacterium into the blood-vessels of several animals, and produced a number of embolic abscesses in every instance, but only once in the kidney. Again, he contused a kidney and injected the bacterium into the ear, and had a suppurating kidney on the following day. For suppuration in the kidney there must, therefore, be a germ present, and, secondly, the resisting power of the organ must be reduced either by traumatism or by hyperactivity.

The *Bacillus coli communis* is found more frequently than any other bacterium in ascending pyelonephritis and cystitis, although it is frequently accompanied by the *Staphylococcus pyogenes aureus* and *Streptococcus pyogenes*. The colon bacillus having its home in the intestine is constantly to be found about the anus, and Bouchard (Charrin, Sur la bactérie commune des infections urinaires, *Soc. de Biol.*, p. 851, 1891) states that it is found about the vulva of healthy persons. Lustgarten and Mannaberg (*Vierteljahrschr. für Dermatologie u. Syph.*, 1887, No. 4) and Krogius (*Arch. de Méd. Expér.*, 1892, p. 75) have shown by their researches that the colon bacillus is not found in the normal urethra, while Guyon has proved that urine drawn aseptically from a normal bladder is sterile. Invasion of the bladder does not take place, therefore, without mechanical assistance, as by catheterization.

In this case the infection spread from the bladder when pathogenic germs had been introduced months before during the passage of the catheter into that organ, when either bruised during labor or injured by the instrument. While under treatment for cystitis there was little danger of spread to the ureters on account of the frequent and copious irrigation. Later, however, finding herself pregnant, and suffering no functional inconvenience, fearful lest the local treatment in the early months of pregnancy would cause her to abort, she ceased to present herself for irrigation, and, her resisting powers being weakened by the increased demand upon her nutrition, she afforded little opposition to the ravages of the invading organisms.

While the family history was pronouncedly tubercular, neither the microscopic nor macroscopic character of the pus or of the kidney would corroborate that condition.

In regard to the treatment of the case, the indications were for free incision and drainage of the suppurating kidney until the patient could have recovered sufficient strength to endure the more formidable operation of nephrectomy. Incision and drainage is the only proper treatment for acute abscess of the kidney, whether of the pelvis or parenchyma, and for pyonephrosis resulting from injury or primary tuberculosis, if that be diagnosed sufficiently early. In advanced cases of pyonephrosis, however, nothing short of nephrectomy should be considered, unless the patient be too greatly reduced, as in this case, to admit of any prolongation of the operation. Primary incision is objectionable on account of the prolonged and exhausting suppuration which follow, of the infection of the tissues of the loin from the purulent discharges, and from the complication of the subsequent nephrectomy by adhesions and the fistula. In the debilitated condition in which this patient was at the time of operation, a more formidable operation than that of free incision was not to be entertained.

This unfortunate case should impress the fact of the criminality of negligence in catheterizing women without previous cleansing of the parts surrounding the urinary meatus and the rigid asepticism of the catheter. The day in which the physician prided himself upon his skill in passing the catheter under the bedclothes has passed, and, in the light of the present day of our understanding, the instrument is introduced under the guidance of the eye, while the physician prides himself upon the freedom of his cases from cystitis and its consequences.

THE ADVANTAGE OF INCISION AND DRAINAGE IN SOME CASES OF PYELITIS.*

BY RICHARD C. NORRIS, M. D.,

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I desire to present the history of a case of pyelitis which was previously mentioned in a communication to this Society last De-

* Read before the Philadelphia Obstetrical Society, June 4, 1896.

cember. It is always interesting to learn the ultimate results of treatment; therefore this case is presented for this purpose as well as to bring forward a topic for discussion.

Mrs. C. had been suffering from frequent micturition and constant pain in the lumbar region for a period of four years following the birth of her last child. During her pregnancy, at the sixth month, she began to have attacks of nephritic colic, and had been treated for these attacks throughout the remainder of her pregnancy. After her delivery the attacks increased in frequency and severity. Her history indicated that she had mild infection following each of her two last labors. Careful examination of the patient found the right ureter enlarged and exceedingly tender, and readily palpated from its vesical orifice along the base of the bladder and upward as far as the finger could reach. The right tube and ovary were slightly enlarged, adherent, and very tender. There was a distinct tumor in the region of the right kidney. The urine contained pus and a small amount of albumin, but no casts. Attempts were made to catheterize the ureter with the hope of draining the abscess in the pelvis of the kidney, and to institute treatment of this cavity by means of repeated aspirations of the accumulated pus, followed immediately by the injection of a quantity of a weak antiseptic solution a trifle less in amount than that of the aspirated pus. It was thus hoped to keep the abscess drained and to favor shrinkage of its cavity, and ultimately to cure the inflamed condition of the mucous membrane of the bladder, which bled so profusely upon the slightest touch that successful catheterization of the ureter was impossible. Each attempt at catheterization of the ureter aggravated the bladder inflammation to a very marked degree, and an incision in the loin was therefore made. The perinephritic abscess was drained, and numerous cheesy masses and disintegrating blood clots, which doubtless had caused the attacks of nephritic colic, were removed. There was no stone in the kidney, whose structure was apparently normal. The drainage-tube which had been placed in the abscess cavity was gradually shortened, and an attempt to remove it was made when the discharge of pus had practically disappeared, and only the urine found exit through the tube. Whenever an attempt was made to remove the drainage-tube the patient was attacked with intense pain, requiring the reintroduction of the tube to afford relief. It was then found upon vaginal examination that the tenderness and thickening of the pelvic portion of the

ureter had not disappeared, and it was believed that obstruction to the passage of the urine along the natural passage was the result of inflammatory thickening of the ureter. At this time, five weeks after the abscess had been opened, a ureteral bougie was passed through the opening in the loin through the ureter into the bladder, and was allowed to remain three days. The bougie was thereafter passed every third day, and the ureter was kept clean by a daily injection of boric-acid solution. This treatment was continued throughout three weeks, when the pelvic portion of the right ureter appeared to be normal, and the drainage-tube was removed.

The urine now found its way through the ureter into the bladder. There was no pain, and the opening in the loin rapidly closed. Nearly two years have passed since this patient was under treatment, and I have recently seen her in order to study her present condition. She is completely cured of her trouble; the opening in the loin has given no pain or discomfort, and the ureter, so far as vaginal examination can determine the fact, is normal. There has been no recurrence of pain, or of symptoms pointing to bladder inflammation.

The interest in this case from the standpoint of treatment is the great advantage of the lumbar incision, in some cases, over catheterization of the ureters. I do not wish to be understood as saying that the lumbar incision will always be more advantageous than exploration and treatment by the ureteral catheter. But I believe there are some cases in which both diagnosis and treatment will be best accomplished by free incision over the kidney. There is no doubt that my patient could ultimately have been cured of her pyelitis had it been possible to have repeatedly catheterized her ureter, and by this means to have drained and cleansed the abscess cavity. But this plan of treatment would have been very tedious and exceedingly painful to the patient, and, further, might have aggravated to an extreme degree the bladder inflammation. Moreover, catheterization of the ureter would not have removed the cheesy masses of disorganized blood clot which repeatedly caused attacks of severe nephritic colic. It has been my experience that in some of the very cases which especially indicate the desirability of catheterization of the ureters, the inflamed condition of the mucous membrane of the bladder prevented the manipulation necessary for repeated exploration of the ureter. On the other hand, the incision in the loin relieved the patient of frequently repeated and painful treat-

ments, and offered a more speedy convalescence. Further, in those cases of pain and purulent urine due to disseminated foci of supuration throughout the kidney structure, catheterization of the ureter does not afford the means of diagnosis or of treatment which is obtained through the lumbar incision. I recall a case which I saw last summer with Dr. Laine at Media, in which case catheterization of the ureter might have left us in ignorance of the true condition present, but the lumbar incision enabled us to determine that the pelvis of the kidney was free from inflammation, and that the inflammatory disease was in the kidney structure itself. I have repeatedly catheterized the ureters with great satisfaction to myself, and believe that much can be done by this means, not only in diagnosis, but also in the treatment of certain renal and ureteral diseases. It is my belief, however, that some collections of pus in the pelvis of the kidney or in the kidney substance are best explored and treated through a lumbar incision.

I should like very much to hear the opinion of the members of this Society with regard to their experience with catheterization of the ureters as a means not of diagnosis, but of treatment for pyelitis or pyelonephrosis.

NEPHRECTOMY FOR TUBERCULOSIS OF THE KIDNEY.*

BY CHARLES P. NOBLE, M. D.,

Surgeon-in-chief of the Kensington Hospital for Women, Philadelphia.

The following case of tuberculosis of the kidney presents several points of sufficient interest to make it worthy of a report. The means adopted for making a definite diagnosis is especially interesting, and strongly emphasizes the great value of Kelly's method of cystoscopy and examination of the ureters. The history of the case is as follows:

Mrs. B. came under my care on the 9th of August, 1895. She was thirty-four years old, the mother of four children, and had

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had seven miscarriages. Her menstruation disappeared in June, 1895. At the time I saw her she was very pale and emaciated, and was much broken down in health in every way. A large swelling was present above the left groin, which had been increasing for the past three years. She gave a history of severe pains "high up" in the left side, from which she had suffered at intervals. She also complained of severe itching all over the body. Recently the swelling above the groin had increased rapidly, and a distinct swelling had appeared in the lumbar region. On palpation the tumor was found to have no connection with the pelvis, and upon percussion resonance was made out over the tumor, the two points indicating a tumor of the kidney. The pelvic examination showed that, aside from lacerations, the sexual organs were normal.

It was evident that the tumor was suppurating, and that the pus had burrowed through the muscles of the back and was seeking an outlet through the skin of the lumbar region. There was every reason to believe that we had to deal either with tubercular disease of the kidney or with a tumor which was suppurating. Owing to the condition of the patient, the indication seemed plain to evacuate the pus through a lumbar incision and to await events.

An incision was accordingly made in the lumbar region, and a large quantity of pus was evacuated. No effort was made to reach the kidney itself, but merely the sinus leading up to it. Following this operation the patient's condition improved somewhat. The temperature, however, never became normal, but would reach about 100° F. in the evening. The pus continued to discharge through the lumbar sinus. The patient remained in the Kensington Hospital for Women from August 14th until late in September, during which time she was kept upon a tonic and supporting treatment.

The ureters were repeatedly catheterized, and at no time was any urine obtained from the left ureter, although upon one occasion the catheter remained in the ureter half an hour. The amount of urine obtained from the right ureter was sufficient to account for the whole amount passed in twenty-four hours, which averaged thirty-five ounces.

In September Mrs. B. returned home for a short time, when she was again admitted to the hospital for nephrectomy. On the 18th of October, 1895, with the advice of Dr. W. H. Parish, an abdominal nephrectomy was performed. A T-shaped incision was made. The vertical incision followed the semilunar line, and an incision

at right angles to this gave free access to the region involved. As far as possible the peritonæum was stripped away from the tumor and preserved. The fatty capsule of the kidney was so infiltrated that it was impossible to do an ideal operation. The kidney tumor and its fatty capsule had to be dug out as well as possible. The tissues of the hilum of the kidney were so infiltrated that they could not be stripped away after the usual method, so that the region was ligated in sections, lest by accident the renal vessels should be torn. This extra care was necessitated because of the extreme prostration of the patient. When, finally, the tissues about the hilum were entirely separated, it was found that the renal vessels had become obliterated. The large cavity left after the removal of the tumor was filled with gauze, which was subsequently removed through the transverse incision, the lower end of which was allowed to remain open. Drainage was also provided through the sinus alongside of the spinal column.

The patient's convalescence was very satisfactory. There was a rise of temperature during the first twenty-four hours to 102° , without other unfavorable symptoms, after which the temperature continuously improved, and there was no further incident of note. Mrs. B. had greatly improved in her nutrition and strength when she left the hospital, and she has continued to do so since. At the last report she had gained thirty pounds. There still exists a sinus alongside of the spine, and one through which the gauze was removed at the outer end of the transverse incision. These sinuses are doubtless kept open by tubercular infection of the lumbar region.

An examination of the kidney after its removal showed that it was greatly enlarged, and the kidney substance proper had largely disappeared. The mass was composed of a series of abscesses with thin walls. The macroscopical appearance gave every evidence of tuberculosis, and a microscopical examination demonstrated the existence of tubercle.

In this case abdominal nephrectomy was selected because of the large size of the tumor, and because of its fixation by exudate. The patient was so feeble that it did not seem wise to take any chances of hæmorrhage in the ligation of the renal vessels, which was an additional indication for the abdominal incision. The diagnosis in this case was positive, as we had not only the high position of the tumor in the pelvis, and the fact that it was not connected with the pelvic organs, but we had in addition a positive

demonstration that no urine was passed from the affected side. This was proved by repeated catheterizations of the left ureter.

A careful examination indicates that Mrs. B. has escaped tubercular disease of the other organs, and that this was a case of primary tuberculosis of the kidney. It is unfortunate that the operation was not done earlier, as undoubtedly the entire lumbar region has become infected through the perinephritic abscess, and there is good reason to fear that eventually this patient will die from tuberculosis. The history of this case is a warning against delay in the radical treatment of tuberculosis of the kidney when the opposite kidney is healthy and the system in general is free from infection. Under such circumstances a nephrectomy is a very simple operation, and one having a very small risk. Lumbar nephrectomy can be performed upon kidneys of moderate size without opening the peritoneal cavity, and with a minimum risk.

In conclusion, I shall strongly urge the systematic examination of the urine in all cases of supposed renal colic. Careful examination should be made for tubercle bacilli, as there is no doubt that many cases of supposed renal colic are really due to tubercular abscesses in the kidney. These examinations, supplemented by a study of the urine obtained from each kidney through ureteral catheters, must prove of the greatest service in the diagnosis of tubercular disease of the kidneys.

SYMPHYSEOTOMY.*

BY G. M. BOYD, M. D., PHILADELPHIA.

The serious problem of how to accomplish delivery in the flat and generally contracted pelvis has presented itself to me in its several phases during the past year. Shall we induce premature labor, or shall we allow our patient to go to term and resort to one of the following operations: High forceps, version, symphyseotomy, or the Cæsarean section? This question confronts the *accoucheur*, and is a difficult one to decide. It is difficult, in my opinion, because

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each case is a study in itself; no law will govern all. We can determine the shape and size of the pelvis, but we can not measure exactly the size and shape of the foetal ovoid. Some years ago this Society discussed at length Forceps *vs.* Version, in papers ably presented by the late Drs. Goodell and Wilson. Harris, Noble, Hirst, Longaker, and others have recently contributed papers on symphyseotomy, and many successful Cæsarean and Porro operations have been reported. One of our Society was the first to perform symphyseotomy in preference to the induction of premature labor.

With this amount of literature contributed, we have taken no little part in setting the world to thinking of the best way to terminate difficult labor, and thereby place craniotomy in the position it should occupy—an operation to empty the uterus of its dead foetus. Symphyseotomy has been resurrected through our appreciation of clean surgery, and it seems to me it has passed the experimental stage of its existence, although in the review of a popular textbook I read: "The furor that has attended the revival of this operation must consume itself in time, and then in the clear light of facts and indisputable statistics the right of the procedure to permanent position as an operative measure in obstetrics will be demonstrated, or the method relegated to its former oblivion." In reviewing the journals of the past year, I do not find as many cases reported as heretofore. Is this due to the fact that cases have not presented themselves for operation, or have the unsatisfactory results made the operator fearful of encountering again the same experience? As symphyseotomy is only indicated in pelves of moderate contraction, cases in which the forceps and version must also be entertained, it becomes a difficult problem to decide *when* it is indicated. In selecting the operation the history of previous labors, if any, will carry great weight. In following the work of the Philadelphia Lying-in Charity since this operation has been revived, I have several times met with cases of pelvic contraction indicating symphyseotomy, and have been in readiness to sever the pubic symphysis if necessary. But in each case, with the intervention of the forceps, labor was terminated successfully. I was about congratulating myself upon the good fortune which followed our work when the following case was referred to me:

Mrs. M., aged thirty-seven years, was admitted to the hospital May, 1895, and was expecting her delivery at any time. She was a native of Ireland, and had previously given birth to five children.

all of the labors having been instrumental. In her first labor she was delivered by Dr. W. S. Stewart, the child living. The second labor, delivered by Dr. E. H. Steer, of Richmond Street, the child living. The third labor, she was attended by Dr. W. B. Scull, of Richmond Street, a difficult forceps operation, but the child was alive. Her fourth delivery, under the care of D. W. B. Scull, was in January, 1892. The doctor writes me that he had great difficulty in performing the forceps operation. The child was dead and for the first time in his experience the forceps slipped. The fifth delivery, under the care of Dr. Steer, on December 25, 1893, was again a difficult labor. The forceps failed, and he called to his assistance Dr. Charles P. Noble, who finally accomplished the delivery by version—another dead baby. The examination of the patient on admission to the hospital showed that we had to deal with a contracted flat pelvis.

Intraspinus measurement.....	26	centimetres.
Intracystal measurement.....	27	"
External conjugate measurement.....	19	"
True conjugate measurement.....	8.25	"
Diagonal conjugate measurement.....	10	"

The child proved to be of good size and head well ossified. With this history of two dead babies, and with the counsel of Dr. Noble in regard to her last delivery, we decided to perform pubiotomy should she not be able to deliver herself. She fell in labor May 31, 1895, having had slight premonitory pains for a day. After seventeen hours of active labor, the head still remaining immovable at the brim of the pelvis, she was etherized, and an incision ten centimetres in length made over the pubic symphysis. The insertion of recti muscles severed, the finger readily slipped into the pre-vesical space.

After a little difficulty in finding the pubic symphysis, the Galbiati knife was passed behind and below the symphysis, and traction made from within out. Very soon we appreciated that the cartilaginous joint was yielding, and lateral pressure was made on each hip. Immediately on severing the joint, the head, which had been transverse at the brim, descended, the occiput rotating anterior. The forceps was now applied, and she was easily delivered of a slightly asphyxiated child, which soon recovered. Following the incision and manipulation there was considerable hæmorrhage, which was held in check during the forceps operation by gauze

packing. The wound was closed with silkworm-gut sutures, the pelvis was bandaged with a many-tailed bandage, over this a canvas binder was tightly laced. The patient was catheterized for several days, complained of no discomfort, and made an uneventful recovery, her temperature never rising above 100° F. The sutures were removed on the tenth day, and at the end of the fourth week, the symphysis being firmly united, she was allowed to get out of bed. At the end of the fifth week she left the hospital feeling perfectly well.

I have intentionally delayed the report of this case that I might be able to see if any complication developed. It is now one year since the operation, and she is perfectly well. She walks well and has no bladder trouble.

In conclusion, I would state that, while I believe we will not often find it necessary to sever the pubic symphysis, it must be entertained in all cases of flat or contracted pelvis, the true conjugate as low as seven or eight centimetres. The operation should be explained to the patient, that she may decide whether she is willing to take the additional risk for the sake of her infant.

EXTRA-UTERINE PREGNANCY OCCURRING TWICE
IN THE SAME PATIENT, WITH GENERAL
CONSIDERATION OF THE SUBJECT
OF ECTOPIC GESTATION.*

BY LESTER E. FRANKENTHAL, M. D.,

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Theory.—It is noteworthy in speaking of extra-uterine pregnancy to refer to the statement made by Minot (1), that the meeting point or site of impregnation in placental mammals is about one third or perhaps one half way down from the fimbria to the uterus. In connection with this let me cite Dührssen (2), who found dead spermatozoa in the right, and at least a dozen living ones in the left

* Read before the Chicago Gynecological Society, June 19, 1896.

tube of a patient who had been confined to bed for nine days in Gusserow's clinic, who claimed to have had intercourse for the last time three and a half weeks previously; and likewise Birch-Hirschfeld, who made a post-mortem on a prostitute sixteen hours after death and found living spermatozoa in the tubes. Coste has shown that after the ovum has graduated the outer third of the tube it is covered with an albuminous coating, making impregnation extremely difficult—in fact, highly improbable. It is essential to mention here the original research of Lode (3). He injected an emulsion of charcoal into the abdomen of a four months' rabbit, and found the same amid the cilia of the fimbria of the tube, though not farther in, for at this age neither the uterus nor the remainder of the tube contain cilia. He then injected into full-grown rabbits two cubic centimetres of an emulsion of the egg of the *ascaris lumbricoides* beneath the diaphragm into the abdominal cavity; respectively ten and thirty-six hours later the rabbits were killed; no eggs were found in the vagina or uterus, most of them in the middle of the tubes. In further proof of the migration and transmigration of the ovum let me cite the case of Weber v. Ebenhof of tubal pregnancy of the right side with absent right ovary, and the experiments of Leopold, who excised the ovary of one side, ligated and cut the tube of the opposite annexa, and in two instances his animals became pregnant. It is not foreign to my subject to mention that Haussmann (4) found living spermatozoa seven and a half days, Percy eight and a half days, after copulation, in the uterine cavity. Henley has shown that a spermatozoon may travel the distance of two centimetres in seven to eight minutes. It is interesting to note that cilia can move a piece of sealing wax five millimetres in size; and that two frogs' heads speared on a glass rod through mouth and oesophagus, facing each other, will move through the aid of the cilia toward each other. Ludwig (41) states that the motion of the tubal muscles is toward the fimbria, that of the cilia toward the uterus. Peristalsis and antiperistalsis has been observed by watching the tubes during operations. The mechanism which conducts the ovum from the ovary to the tube is at the present time not settled. Von Haller produced an erection of the tubes on the dead by injection through the spermatic vessels. Rouget (5) claimed that by way of reflex irritation the smooth muscular fibers in the meso-ovarian and broad ligament contracted and closed the fimbria over the ovary. Kehrer, on the other hand, showed that the fimbria were attached just at

that place where the follicles burst most frequently. Leuckart explains the bursting of a follicle like an ejaculation, during which the ovum is thrown into the tube. The theory advanced by Becker is that the cilia found on the outer surface of the fimbria dip into the peritoneal fluid, and give the ovum the direction toward the fimbria. Additional weight is added to this by Kussmaul, who says that the peritoneal fluid, *in loco*, is increased by the bursting of the follicle, thereby aiding the cilia. C. Hasse claims that the tube turns upon its own axis backward, so that its mesentery covers the upper posterior surface of the ovary, forming a bursa ovarica—a pocket filled with peritoneal fluid. I have thus far recapitulated briefly all available material—experimental and natural—on the migration of the ovum and spermatozoa, the mechanism of the cilia and tubes. Heil (6), Hasse (7).

So that

1. Living spermatozoa have been found in the tubes.
2. The customary site of impregnation in mammals has been proved to be in the tube.
3. The ovum is impermeable after it has graduated the outer third of the tube.
4. The motion of the cilia in the tubes is toward the uterus.
5. That of the muscular fibers is toward the fimbria.
6. The motion of the uterine cilia is toward the tubes.
7. Extra-uterine pregnancy frequently occurs.

All of these facts confirm my belief, notwithstanding the opinions of eminent authors to the contrary, such as Bland Sutton (8), Lawson Tait (9), that the future will bring additional evidence in abundance to convince us that, in the human female, impregnation occurs normally in the tubes.

Granting that impregnation has occurred in the tube, why now does the fecundated ovum, in some instances, not wander to the uterus? The human ovum measures 0.2 millimetre. Fecundated in the second week, it measures three to six millimetres; the uterine opening of the tube measures two to three millimetres. If for some reason the migration of the fecundated ovum be delayed, a mechanical hindrance will offer itself to its entrance into the uterus. Von Winckel (10).

Selenka has demonstrated the extremely adhesive, sticky properties of the fecundated ovum at the time of implantation. The cells of the discus proligerus covering the zona pellucida are only

gradually destroyed along its wandering, so Wyder (11) theorizes that on account of a premature discharge of the ovum from the follicle some of the cells of the discus may remain attached in the follicle, exposing the zona of the ovum, and causing its untimely adhesion in the tube. Mechanical anomalies, such as accessory tube found by Kossman (12) in from four to ten per cent. of women, supernumerary ostia abdominalis tubæ found by Edebohls (13), may hinder the migration of the fecundated ovum. Of the pathological conditions which interfere in the progress of the ovum, let me briefly enumerate a fibroma of the tube found by T. Spath (14) four and a half to five centimetres in size. Mucous-membrane hernia of the tube described by Rokitansky (15). Persistence of the foetal convolution spoken of by Freund (16), contradicted by Wedeler. Perisalpingitis, salpingitis, and tubal diverticula (Carus and Abel). Adhesions from previous abdominal operations and previous inflammatory diseases may likewise interrupt the passage of the ovum. Mandelstamm (17) found a polyp in the fundus of the uterus obstructing both tubal ostæ.

Pathology.—The fecundated egg becoming implanted in the tube, what will its fate be? That portion of the tube not directly involved in the attachment of the ovum shows small cell infiltration. Once in a while the mucous membrane seems to grow in between the muscular fibers, the musculature of the tube undergoes hyperplasia and hypertrophy, especially the circular fibers. Freund calls especial attention to this very interesting fact, that this hypertrophy does not occur to the same extent in the impregnated infantile tube as it does in the other, explaining thereby their greater liability to rupture. In nearly all the tubes the cilia has been found, and where the examinations were made soon enough, in motion. In some cases extreme rarefaction of the tubal walls has been described. The insertion is like in uterine pregnancy, usually on the posterior inferior surface of the tube. The uterus hypertrophies as in uterine pregnancy; its mucous membrane is converted into a decidua. In accordance with the amount of pressure will the mucous membrane of the foetal sac be cylindrical, cuboidal, flattened, atrophied, or absent. In the first months the adhesions between the foetal sac and tubal walls are not as intimate as in uterine pregnancy. In part the mucous membrane is intimately connected with the epithelium of the decidua, in part only loosely coaptated. The decidua vera forms only where the egg becomes inserted. At the placental

insertion the epithelium is entirely lost, the mucous membrane being converted into a decidua serotina. There is here no well-defined boundary line between decidua and mucous membrane, the one growing into the other. This strata is named by pathologists the submucosa tubæ. The tubal decidua differs from the uterine in that its boundary line with the muscularis is lost in many places. Von Winckel and others have found a decidua circumflexa consisting of large decidua and connective-tissue cells and smooth muscular fibers. The chorionic villi are much as in normal pregnancy; in many instances they are covered by a double layer of epithelium; the relation between the decidua and villi is almost like in uterine pregnancy. The tube wall becomes thinned if the egg implants itself in a portion of the tube hindered in its free locomotion and development; though opposite the implantation, the tube hypertrophies till later impregnancy, on account of excessive growth, it too becomes thin. The nutrition of the villi will suffer in proportion to the amount of hæmorrhage, and in time become destroyed. First the epithelium swells, then becomes cloudy, is raised, and its nuclei may be lost; neither the epithelium, stroma, nor vessels remain recognizable. The same may happen to the decidua cells. This will account for the absence of villi and decidua cells when the tubes are removed some time after hæmorrhage has occurred. Zedel (18), Klein (19), Abel (20), Berry Hart (21), Keller (22).

The pathological diagnosis may be made according to Orthman (23): (1) If we find an organized blood clot within the tube, (2) the presence of decidua cells is not necessary; (3) chorionic villi will only be found in the very first months of pregnancy.

✓ Von Schrenck found rupture

13 times in the first month.....	10.8 per cent.
67 " " second "	55.8 "
28 " " third "	23.3 "
12 " " fourth "	10 "

Shauta found rupture

15 times in the first month.....	19.4 per cent.
29 " " second "	37.6 "
23 " " third "	29.8 "
10 " " fourth "	12.9 "

Orthman collected seventy cases, and found rupture and abortion (by abortion is meant the delivery of the ovum through the fimbriated extremity) to occur about equally as often—thirty-eight

ruptures, 54.2 per cent., to thirty-two abortions, 45.7 per cent. Martin collected fifty-four cases, and found rupture twenty-three times, 42.7 per cent.; abortion twenty-nine times, 53.7 per cent. In two cases he found both rupture and abortion, 3.7 per cent. In these last two the rupture being secondary to the abortion.

Rupture may occur—

1. During examination or operation.
2. Through thinning of the tube wall.
 - (a) Hæmorrhage between egg and wall.
 - (b) Implantation not occurring in a free part of the tube, but near the uterine insertion, the growth of the tube not keeping pace with the growth of the foetus. Klebs (25).
 - (c) A pseudo membrane, becoming tenser and tenser as the tube enlarges, making traction and finally causing rupture. Kaltenbach (26).
 - (d) Implantation in the hernia of the tube.
 - (e) Implantation in foetal convolution of tube.
3. (a) Through growth of normal villi into the musculature of the tube. Leopold (28).
- (b) Through growth of a myxomatous degenerated villi into the musculature of the tube. Recklinghausen (29).

Rupture usually occurs near the placental site. After rupture the ovum may remain

1. Inserted and continuing its growth, or be converted into a mole.
2. Or be expelled with or without its membrane into
 - (a) The abdomen.
 - (b) The broad ligament.
 - (c) The tubo-ovarian cavity.

Every rupture is followed either by

- (a) Free hæmorrhage into the abdomen; or
- (b) The formation of a hæmatocele; or
- (c) Free hæmorrhage and hæmatocele; or
- (d) The formation of a hæmatoma.

Then the foetus becomes either

- (a) Absorbed; or
- (b) Mummifies; or
- (c) Macerates; or
- (d) Decomposes; or
- (e) Undergoes lithopedian changes.

Leopold showed (30) that a foetus two centimetres and a half in size placed inside of the abdominal cavity of a rabbit was absorbed in two days; only the bones were left of one five centimetres in size twenty-four hours later. Fehling says that the foetus of the early period consists of 97.5 water.

Classification.—Tubal pregnancy may be divided into—

1. Graviditas interstitialis; (b) tubo uterine.
2. Graviditas tubaria propria; (b) intraligamentosa.
3. Graviditas ampullaris; (b) tubo-ovarialis; (c) tubo-abdominalis; (d) abdominalis. Martin (31).

Schrenck found of six hundred and ten cases, reported as—

Tubal.....	83.5 per cent.
Abdominal.....	8.2 "
Ovarian.....	4.6 "
Interstitial.....	3.6 "

Sanger (32) wished tubal abortions divided into complete and incomplete. He likewise speaks of a secondary rupture after tubal abortion. In this condition multiple fissure are visible in the tube wall. This possibly will explain the re-occurrence of hæmorrhage after the primary hæmatocele has formed. The formation of the hæmatocele is undoubtedly favored by pre-existing pelvic adhesions from previous disease, though this is not absolutely necessary, for the blood may flow so slowly that it becomes intrenched, so that the coagulum is found to consist of lamellæ.

The hæmatocele usually forms behind the uterus, crowding the uterus forward and upward (out of the true pelvis); or it may become located to the right or left or in front of the uterus, or, as I have seen it in one instance, on top of the lumbar spine. In the event of rupture occurring into the broad ligament, a hæmatoma will form. The fate of the foetus is the same as in abdominal rupture, only that here perforations into the bladder, vagina, or rectum are more frequent. The hæmatoma will become absorbed, or, if infected from micro-organisms in the tube or contact with bowel, it will form an abscess.

Symptoms.—The previous history and symptoms of ectopic pregnancy as usually met with are—

1. Prolonged sterility, with or without previous pregnancy.
2. Irregular and peculiar menstrual history. That is, (a) the menstrual period having skipped one or two months, comes on at a time not corresponding to the usual period, or, (b) coming on

at the right time, is prolonged; (c) the menstruation comes on ahead of the usual time. This may occur from two to three weeks after impregnation. (d) A decidua may or may not be passed; (e) later a second decidua may be passed. (v. Winckel and Fränkel (40).)

3. During the first eight weeks of extra-uterine pregnancy the usual subjective symptoms are absent. (a) Neither is there the morning sickness; (b) nor the fullness of the breast; (c) nor have I found serum in any of the breasts of my patients where I have looked for it; (d) nor do the patients feel as they did in previous pregnancies.

4. By physical examination we find the uterus enlarged, though in my experience not as in intra-uterine pregnancy. The enlargement is more in the long axis. Hegar's sign I have never noted, nor is Ahlfeld's developed. After the fourth month foetal heart sounds can be heard and foetal parts be felt. There may be dullness on percussion early, after rupture or abortion, in one iliac fossa.

5. If ruptures have occurred, and a hæmatocele formed, say posteriorly (to the uterus), then I consider the position of the uterus quite characteristic of extra-uterine pregnancy; for after repeated examinations the uterus will be found more and more dislocated forward and upward against the symphysis, the cervix almost flattened. In hæmatomas the uterus is usually dislocated to one side. At first the tumor is always to one side, but, if the hæmorrhage continue, the peritonæum will be raised up posteriorly to the uterus, so that the swelling no longer remains confined to one side.

6. The symptoms of rupture and abortion are alike, excepting that in abortion (1) the symptoms due to sudden acute anæmia are less pronounced; (2) that locally one finds a tumor sooner; (3) that the tumor is not as large; (4) that the pains are more intermittent, like labor pains, reaching a typical acme. The pain is sudden in its onset; it is intense, remitting, diffuse, over all the abdomen, though in a few instances, where I was called early, the patients could localize the intensest pain sufficiently well to aid in the diagnosis of the side affected.

7. Vesical and rectal tenesmus.

8. In the later months painful foetal motion.

9. If the patient is seen while hæmorrhage is going on, or its effects still last, the pulse will be found accelerated 120 to 160, growing more and more indistinct, to be finally lost entirely.

10. The temperature will be normal or subnormal in proportion

to the hæmorrhage. On the following day I have frequently seen an elevation in temperature due, I believe, to (1) anæmia (Eichhorst (33)); (2) peritoneal irritation and inflammation; (3) absorption (Landois (34)). Of value to note is that the death of a newborn child may be caused by the loss of a few cubic centimetres of blood; that of an infant one year old by the loss of two hundred and fifty cubic centimetres of blood; and that of an adult by the loss of one half of the whole quantity of blood, the body in the infant containing one nineteenth, in the adult one thirteenth, of blood to the whole weight of the body.

11. Signs of anæmia and shock. Shock may be caused more by the presence of the foreign body in the peritoneal cavity, and consequent peripheral nerve irritation, than by the acute anæmia. (Schwartz (35).) Signs of anæmia other than those mentioned: (a) Pallor; (b) cold sweat; (c) yawning; (d) disturbed vision; (e) unconsciousness. All of these symptoms in proportion to (1) loss of blood; (2) the time consumed in losing it—that is, the rapidity. Aracki (36) found sugar and lactic acid in the urine.

12. The abdomen is extremely sensitive to touch, and many times extremely tympanitic.

13. Worthy of mention is von Winckel's sign of the unilateral pulsating artery, though in one instance I was nearly deceived by it in feeling the uterine artery of a sinistroverted, retroflexed pregnant uterus.

Diagnosis.—The diagnosis should be made by the aid of the previous history, the present symptoms, and the local examination. Especially valuable is this last investigation if we be acquainted with the previous condition of the patient's genitals. The diagnosis should never be aided by the use of the curette or sound: (1) Because it is dangerous on account of the possibility of rupture being provoked. (2) If curetting elicits positive signs (decidua), they may even then be deceiving (decidua of normal pregnancy). If a tumor be present, a small aspirating syringe may be used *per vaginam* to differentiate pus from blood, though even this is rarely necessary. In the early months it is of differential value, that the insertion of the round ligament is lateral in interstitial and cornu pregnancy; median in tubal. In cornu pregnancy the tube of the pregnant side is inserted lower than the non-pregnant one (Martin). After rupture the tumor is no longer as freely movable, nor are its outlines as well defined; if the rupture has occurred into the broad

ligament, the tumor reaches much lower into the pelvis, and is more intimately connected with the uterus, very much like in broad-ligament cysts. The diagnosis of extra-uterine pregnancy is just as certain in some cases, especially in patients the previous local conditions of whose genitals we are acquainted with, as is that of appendicitis in many cases.

Differential Diagnosis.—Differentiate we must between—

1. Retroflexed pregnant uterus, possibly complicated by a cervical polyp bleeding occasionally.
2. Pregnancy in bicornate uterus.
3. Intra-uterine pregnancy, complicated by an annexa tumor.
4. Ruptured pus tube.
5. Ruptured varicose veins of tube, broad ligament, hæmatocele from ruptured Graafian follicle, hæmatosalpinx.
6. Rupture of an ulcer of the gastro-intestinal tract and appendicitis.

Prognosis.—Cestan (37) collected 249 cases, and found of the 173 operated 21.3 per cent. died; of 76 treated conservatively, 85.8 per cent. died. Martin collected 914 cases. Of these 278 were treated conservatively; thirty-three per cent. recovered, sixty-seven per cent. died. Of the 636 cases operated, eighty per cent. recovered, twenty per cent. died.

Treatment.—Personally I have tried neither electricity nor morphine injections. While in Munich I observed a case treated by Geheimrath v. Winckel with morphine, and it did well. The conservative plan of treatment proved to be a failure, not only on account of the high mortality, but likewise on account of the following complications occurring in my own experience in cases seen in my own practice with consultants and as consultant in the practice of others:

1. Case of chronic œdema of leg, necessitating the wearing of an elastic stocking.
2. Metrorrhagia lasting for more than one year after extra-uterine pregnancy, in spite of intra-uterine treatment, there remaining a hard nodule of about one inch and a half in diameter in left broad ligament.
3. Case of death from sepsis (post mortem), brought to hospital in a dying condition a week after rupture; not operated.
4. Death from hæmorrhage and shock.
5. A persisting hard mass as large as a fist situated in the Doug-

las' pouch, producing pressure symptoms on neighboring organs four months after primary rupture, finally necessitating operation.

6. The later in pregnancy the operation is performed the more serious the complications, the more dubious the prognosis. After viability the mortality from the operation increases to 33.3 per cent. (Orillard). Pregnancy frequently continues after rupture, so that finally operate we must. Why then not operate at once?

7. Extra-uterine pregnancy may occur twice and three times in the same patient.

8. Hydronephrosis and eclampsia may be caused by pressure from the shrinking extra-uterine sac. Steltner (43).

9. The ovum may become malignant. Ahlfeld and Marchant (38).

10. The operation conducted in a properly managed hospital and performed by an experienced surgeon carries with it hardly any mortality. The earlier performed the less numerous and organized are the adhesions, the less likelihood of sepsis from infected blood, the better the constitution and general condition of the patient—at least so far as the extra-uterine pregnancy has any bearing on it. Unless performed during the stage of shock, the patient can be properly prepared, the day being determined in advance, as for any other operative interference, the surgeon and assistant are at hand, daylight facilitates our work; in short, the prognosis in my opinion is far better with an early operation, and I advise it excepting in those few cases seen days or weeks after rupture or abortion, where the foetus is presumably dead and a speedy absorption is noticeable.

A novel suggestion comes from Sippel (39), who advises placing the patient in the Trendelenburg position if seen at the time of rupture, so that the blood can not accumulate in the pelvis, but, being distributed among the intestines, is exposed to a larger absorbing surface, thereby avoiding shock, hæmatocele, and finally operation.

The operation may be performed through the abdomen, vagina, or both. Only during the first eight weeks would I operate through the vagina, and then only in the pedunculated (unruptured) cases, or for the sake of merely draining through the Douglas' *cul-de-sac*, or where suppuration had taken place, as I consider the danger from hæmorrhage too great after the placenta is developed. I have operated twice during profound shock within a few hours—five to twelve

—after rupture. Both patients recovered. A third patient upon whom I operated during shock in almost a pulseless condition, who had had three distinct and separate hæmorrhages extending over a period of several week, died. She was absolutely pulseless ten minutes after the operation had been started, and died about three hours later. An early operation might have given her a better chance of life.

As an anæsthetic I prefer chloroform in the beginning. It is quicker, more agreeable, and the patients are less apt to struggle, thereby decreasing the dangers of shock and hæmorrhage. After the patient is asleep I change to ether. The neutral salt solution for transfusion must always be on hand, hot, ready for use. It certainly has saved several patients for me and others whom I chanced to assist while operating. Worthy of mention is the suggestion to transfuse before operating if the patient be in shock. Personally, I feel more inclined to have an assistant expose the vessel in the arm at the same time the abdomen is being opened and to transfuse only after the bleeding adnexa is clamped. I feel convinced that the salt solution does good only mechanically by its quantity, and am therefore quite determined in my next desperate case to transfuse direct from man to patient, so that I may combine quantity with quality.

Cœliotomy during the early months needs no detailed description, it being the same as that for the removal of the adnexa. I suggest in cases where great haste is necessary to merely clamp the adnexa and cut them off, leaving the clamp *in situ* for twenty-four hours. All blood should be carefully removed from the abdominal cavity as far as safety and time will permit, as blood after being in contact with the air is no longer sterile. In one instance, where on account of the patient's condition I dared not delay longer, I closed the abdomen, thinking that all the blood would be absorbed. An abscess was the result, delaying the patient's recovery for eight weeks.

I consider catgut preferable to silk in abdominal surgery where there is the least chance of infection. I have not seen a fistula in three years while using catgut, nor have I seen a catgut ligature slip secondarily; nor can I trace any infection to catgut during the last year, for during that time our raw gut is cut in pieces thirty-six inches long, then sterilized after the method of von Bergman. Of this sterilized gut a piece one inch long is cut from either end and put in bouillon for culture purposes before using.

After viability the operation is more serious. I refer again to Orillard's statistics referred to above. Excepting for the purpose of drainage, the vaginal route is absolutely contra-indicated—that is, after viability. Ligation of the uterine and ovarian arteries, sometimes on both sides; ligation *en masse* with rubber ligature; compression of the abdominal aorta; the use of clamps, tampons, removal of the uterus *in toto*; transverse incisions through the recti to make the abdominal cavity more accessible, must be our resources for checking the terrible hæmorrhage that threatens to end the patient's life in a few minutes. Where it is possible remove the placenta at once, to avoid secondary hæmorrhage and infection, I consider Negri's method—to leave the placenta with its membrane and close the abdomen over it—a dangerous procedure. Although it has met with success in a few cases, I should be afraid to try it myself. Of no greater value is the advice of Martin, who trims the cord and membranes and sews them over the placenta, and then establishes vaginal drainage. Where the placenta is low in the pelvis this method might find its application, and just in these cases the placenta is easiest of removal.

There can be no question about the sameness of many of these cases of extra-uterine pregnancy—a sameness conspicuous when compared with themselves and other cases calling for abdominal surgery. I shall therefore not worry you with a detailed description of all the cases I have seen, but shall but briefly describe a few of them.

CASE I.—The case that instigated the writing of this paper is that of Mrs. K., wife of Dr. K., it being a case of extra-uterine pregnancy occurring twice in the same patient within fifteen months. I find eleven other cases published previous to the occurrence of this one and one since. Briefly, the case is this: Through the courtesy of Dr. O. L. Schmidt and Dr. K., I was called to see Mrs. K., who had been taken with severe abdominal pains the night previous to my seeing her (September 26, 1893).

Previous History.—Began to menstruate at fourteen, regular, no pain; married at twenty-one. At twenty-two had a miscarriage in the eighth week; last menses September 1, 1893, three days' duration—ahead of normal time. No membranes passed. September 26th, in the evening was taken with sharp abdominal pains; thought merely intestinal disturbance. About 5 A. M. the following morning went to the toilet to evacuate bowels, fainted, and had to be

carried back to bed; seen by Dr. Schmidt at 10 A. M. Suspected internal hæmorrhage, and requested that I be sent for. Saw the patient at 1 P. M.: semiconscious, nearly pulseless, pale, covered with cold sweat, restless, severe abdominal pains, abdomen very sensitive. By digital examination could feel a slight resistance in left broad ligament. Advised removal to hospital for immediate operation, on account of ruptured ectopic pregnancy. At 5 P. M. she was operated; anæsthetic in beginning chloroform; patient absolutely pulseless, left tube, with its rupture close to the uterus, ligated with silk and removed. At this stage Dr. L. L. McArthur kindly infused about a quart of hot salt solution into the vein of the arm, with the gratifying result of bringing back the pulse. While this was being done, with the efficient assistance of Dr. Banga, I cleansed the abdomen of all free blood as much as the patient's condition would permit. Tamponed with a Mikulicz, closed the remainder of the abdomen, and sent the patient back to bed. About an hour later the pulse began to fade, to be lost entirely at 9 P. M., when I again transfused another pint into the arm. After midnight the patient rallied, and finally made a good and uninterrupted recovery. At the time of the operation I picked up the right tube, and noting Freund convolutions quite developed, just as they were in the ruptured tube, I remarked that every possible chance existed in this case for another extra-uterine pregnancy, which did occur fifteen months later. The patient was found in a similar condition as at the time of the first extra-uterine pregnancy, and was operated five hours later, the symptoms growing more and more alarming. This time I used catgut as a ligature, but did not drain. The recovery was complicated by a pelvic abscess, which was opened through the vagina, and which did not heal until the silk ligature from the first operation was discharged.

CASE II.—Mrs. S., taken with symptoms of ruptured extra-uterine pregnancy; removed to hospital. Hæmatocele, symptoms of anæmia, etc. She rallied to have second hæmorrhage three days later, with increasing size of hæmatocele, noted by comparing increasing size with previous boundary lines of hæmatocele marked with nitrate of silver. Patient was seen by the surgical staff of the hospital and diagnosis confirmed. Hæmatocele became entirely absorbed. Three years later normal intra-uterine pregnancy. Gave birth to a healthy child.

CASE III.—Case referred to me through the courtesy of Dr. E.

Lackner. Mrs. P. had all the symptoms of a ruptured extra-uterine pregnancy five months previous to our seeing her together. About two inches up on the anterior wall of the rectum a rib could be felt sticking into the lumen of the bowel. Patient chloroformed; opening into sac dilated; skeleton removed bone by bone; tamponed cavity for forty-eight hours; irrigated from then on with Thiersch solution; good recovery.

CASE IV.—The fourth case I shall simply mention on account of the unusual site of the hæmatocele. It lay on top of the lumbar spine, covered over by a small intestine, the uterus twisted on its own axis, the pregnant tube imbedded and adherent in the hæmatocele. The only explanation I can offer for this extraordinary finding is this: The first physician called mistook the local condition for a retroflexed pregnant uterus, and tried to replace it, the patient being in the knee-chest position, which position he ordered her to assume several times a day. She followed his advice for several days, when I was called. This may be the explanation for the absence of the pelvic hæmatocele. Her recovery was complicated by a genuine attack of measles, necessitating her removal to the out ward three days after the operation.

CASE V.—Through the courtesy of Dr. F. Gurney Stubbs I was called to see Mrs. N., aged thirty-one years; two children; last child sixteen months ago. Only a "show" in April. In May regular menses. Seen by Dr. Stubbs April 27, 1896, for the first time, on account of "cramps." Mass in Douglas' pouch. Treated conservatively. Offensive discharge from the uterus; gentle curettage May 7th. In slight shock May 17th. Rallied nicely; improved till May 20th, when Dr. S. was called, who found her in deep shock; temperature 97°, pulse 140; respiration sighing; semiconscious; extremities cold; signs of another internal hæmorrhage. Saw patient at this date for the first time with Dr. Stubbs. Advised removal to hospital for immediate operation, with a poor prognosis. Opened abdomen about three hours and a half later. Patient perfectly blanched, nearly pulseless, and only semiconscious. Abdomen opened; scooped and soaked out of pelvis and abdomen at least four pints of fluid. Ligated left ruptured tube; removed three months' foetus from Douglas' pouch. Drained with Mikulicz; closed abdomen and transfused. Patient rallied for about an hour; died two hours and a half after operation. Direct transfusion might have saved her life.

CASE VI.—Patient was operated before rupture; seventh week of pregnancy. Made a good recovery. I take great pleasure in presenting the specimen, a carefully prepared macroscopical and microscopical report, kindly furnished by Dr. W. A. Evans, and a photograph of the gross specimen, and likewise one of the transverse, and another of the longitudinal microscopical finding:

CHICAGO, June 17, 1896.

DR. L. E. FRANKENTHAL, 103 Randolph Street, City.

DEAR DR. FRANKENTHAL: The specimen is a Fallopian tube with an ovary underneath. The weight in alcohol is sixty grammes.

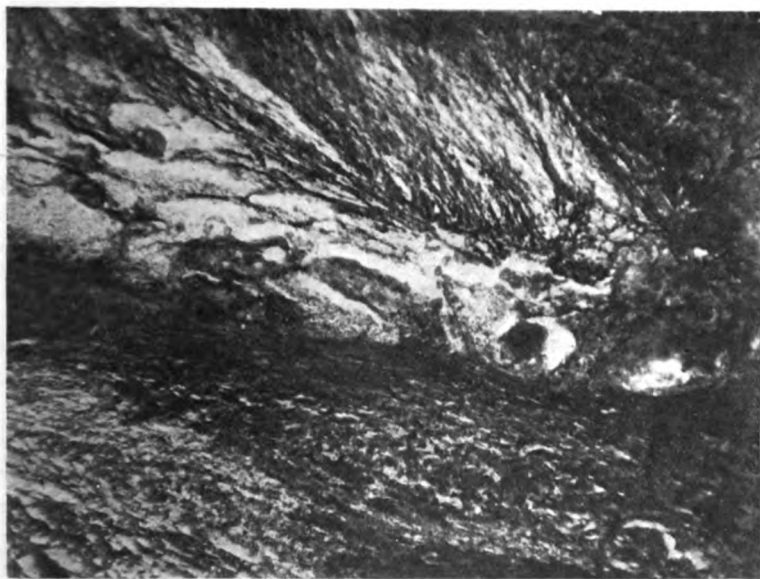
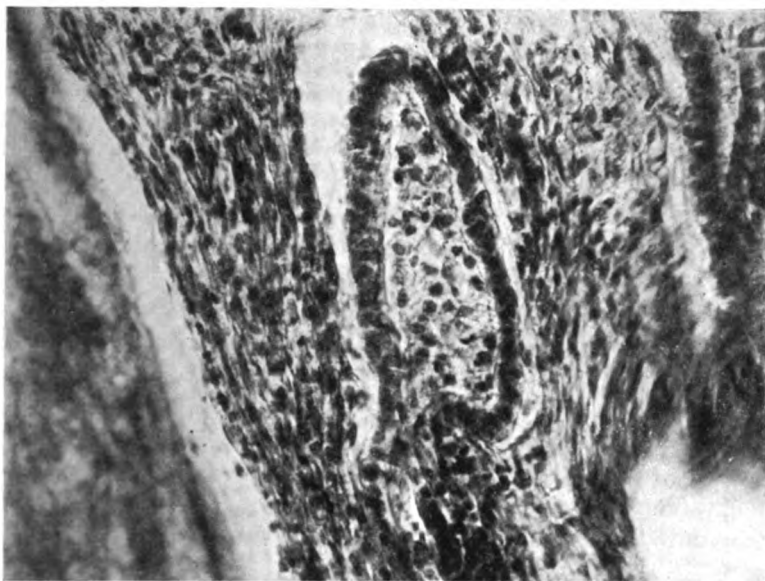
The dimensions are $75 \times 4.5 \times 4$ centimetres in alcohol. The specimen is divided along its convexity. No other openings are apparent; at its inner end is a bit of tube about 0.75 centimetres in length, and increased in diameter but little over the normal. Cut section shows a solid darker mass at the proximal extremity of the tube, and a large cyst lobular in shape at the distal extremity of the tube.

Microscopical Examination.—*Question 1.*—Whether the villi are implanted on the musculature or epithelium of the tube? *Answer.*—The villi are generally in the

midst of the mucosa, though there are areas in which the villi are in the midst of round cells and close to the muscularis, but without any epithelial elements whatever.

Question 2.—Presence or absence of ciliated epithelium? *Answer.*—In that portion of the tube to the inside of the portion that is the seat of dilatation there is marked increase in the papillomatous arrangement of epithelium. The epithelium is proliferating actively. Cilia can be seen.





To the outer side of this area there is an area which may be termed decidua serotina. In this there are no papilla, and no papillary arrangement. Some of the epithelium is cubical, and some of it is in the form of large flat cells. Over most of the globular area no epithelium is recognizable.

Question 3.—The presence of a submucosa and the intimate relation between the villi and the musculature? *Answer.*—I do not find any area in which there is not a submucosa, and in no point are the villi directly in the midst of the muscular tissue.

Question 4.—The presence of a decidua serotina, vera, and reflexa? *Answer.*—There is very marked decidual thickening at that proximal point in the tube where the placenta is preparing to develop.

Question 5.—The amount of hypertrophy and hyperplasia of the musculature of the tube? *Answer.*—The musculature is generally markedly thickened; there are a few places in which it is thin—one point at the placental attachment and another at the distal extremity of the tube.

Thanking you for the specimen,

We are very truly yours,

Columbus Medical Laboratory.

per R. H.

Herewith I have tried to collect all available material, and have embodied my personal experience obtained through observation in thirty-seven cases seen either in my own practice or in consultation with Drs. H. Banga, R. G. Collins, T. J. Watkins, W. W. Jaggard, F. G. Stubbs, E. Lackner, W. C. Williams, L. L. McArthur, O. L. Schmidt, M. L. Goodkind, and S. P. Black, and shall summarize as follows:

1. Impregnation occurs in the tube.
2. In the majority of cases the ætiology of extra-uterine pregnancy can be established by a mechanical hindrance to the wandering of the fecundated ovum from the tube to the uterine cavity.
3. Treat conservatively only those cases seen some time after primary rupture, where you feel fairly certain of the death of the foetus, and where the alarming symptoms have subsided, and where presumably absorption is going on.
4. Operate early, for reasons given above.
5. The operation during shock is not contra-indicated, for fre-

quently just the removal of the foreign body from the peritoneal cavity removes shock.

6. Drainage, preferably vaginal, should be done in all cases.

7. To relieve shock transfuse salt solution where the amount of blood lost is not too great, and where the hæmorrhage has not occurred repeatedly at long intervals; for then direct transfusion should be practiced, as the functions of vital organs have become impaired, and they need more than a mechanical stimulus—they need red blood-corpuscles.

8. To hasten some operations merely clamp annexa and leave clamps *in situ*.

9. Whenever possible remove the placenta; if not, tampon and drain.

10. In deciding when to operate after viability, do not consider the child, for not only are they short lived (of fifty-seven cases collected by Harris five only were alive after two years), but likewise are they deficient in development.

11. Sterility on account of the number of criminal abortions and prevention of conception is not a very reliable symptom.

103 RANDOLPH STREET.

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SCHILLER BUILDING.

DIAGNOSIS OF PREGNANCY BY THE CHANGES IN THE MICROSCOPIC APPEARANCE OF THE URINARY PHOSPHATES.*

BY WILLIAM E. PARKE, M. D., PHILADELPHIA.

The diagnosis of pregnancy has in all times been one of great interest. The two or three universally admitted positive signs of this condition are not available until the fourth or fifth month; hence any presumptive sign before this period is entitled to our investigation. From time immemorial the urine has been scrutinized for some indication of the pregnant state. The older authors taught that the presence of kystein was diagnostic of this condition—a belief which still finds credence among certain laymen. Cazeau, in his

* Read before the Philadelphia Obstetrical Society, June 4, 1896.

work, *Theoretical and Practical Midwifery* (1860), states that the presence of kystein in the urine of pregnant women is not as certainly diagnostic as some authors have supposed. Parvin, in *Science and Art of Obstetrics*, says: "The urine may be examined as to the presence of kystein or as to the lessened quantity of its solid constituents, but such examination is of scientific rather than of practical value. Palmer, in *An American Text-book of Obstetrics*, says: "Kystein, sometimes present in pregnant women, is a protein substance, consisting of triple phosphates, fungi, and infusoria, that form like a flocculent cloud in the urine kept standing for a few days at a temperature of 70° F. It occurs in the urine from the eighth to the thirty-second week of pregnancy, then disappears. It has practically no diagnostic value, as it is found in the urine of non-pregnant women, and at times in that of men." This represents the teaching with reference to kystein at the present day. I am not aware that any modern text-book assigns any importance to the value of the urinary constituents in the diagnosis of pregnancy. It was therefore with no little interest that I read an article in the *Virginia Medical Monthly*, of March, 1887, by Dr. William B. Gray, of Richmond, in which he stated that he could positively diagnose pregnancy within twenty days after conception by certain changes in the microscopic appearance of the urinary phosphates. Dr. Gray's description is as follows: "The normal triple phosphate is more or less of a stellate figure, and markedly feathery. Sometimes the stella is segmented, and one leaflet stands alone to itself. Whether we see it in bold relief as a star or dismembered as a solitary leaflet of the same, the feathery character is always to be remarked on both sides of the center fiber of each leaflet. To know and thoroughly understand this will properly prepare us for the better appreciation and comprehension of the abnormal phosphate. Now, as soon as conception occurs, or within twenty days thereafter certainly, the feathery portion of the stella or segment thereof begins to disintegrate. This decay, so to speak, may progress from the apex toward the base of the crystal, or may declare itself by destroying progressively the feathery contribution of one half the leaflet, the center fiber of the same determining and defining its boundaries. If a stella is found in comparative integrity, it will be seen shrunken and withered and distorted, as a tender plant withdrawn from its bed in the earth and exposed to the heat and wilt of the unfriendly sunshine. Past the middle of the seventh month

the phosphates begin somewhat to approximate their pristine form and general character, and at the *accouchement* can scarcely be differentiated from the normal. It is likewise true that, when the foetus perishes during the gestation, the phosphates at once recover their normal character in all respects."

Dr. Gray's directions for preparing the urine for examination are as follows: Take about one inch and a quarter of the suspected urine in a small test tube, and add about one third as much of Tyson's magnesian fluid as there is of urine. This will throw down the triple phosphates in fifteen or twenty minutes, and furnish the necessary material for microscopic examination. Tyson's fluid is composed of one part each of the muriate of ammonia, aqua ammonia, and sulphate of magnesia, and eight parts of distilled water.

I have now studied about seventy-five specimens of urine of women known or thought to be pregnant. It was my intention to present a tabulated record of these cases. Many of them, however, were seen in dispensary practice, and, as is so often the case in this class of practice, they disappeared after one or two visits, and their subsequent history was not learned, so that this number includes some doubtful cases. I believe, however, from my study of these specimens, that the changes pointed out by Dr. Gray deserve to be ranked as a presumptive sign of pregnancy. I am convinced, also, that the earlier cases afford more marked changes than the advanced ones, and herein lies the most valuable feature of this sign. In one case, examined at the sixth week of pregnancy, the changes referred to were absolutely characteristic, and subsequent developments warranted the diagnosis. In about ninety per cent. of cases examined within the first two months of pregnancy changes more or less characteristic were noted. Specimens from the same patient at short intervals were not equally characteristic; advanced cases of pregnancy—*i. e.*, those beyond eight months—showed little or no change in the phosphates. I have not found a specimen from the non-pregnant subject which showed the characteristic changes well marked. On the other hand, I have never, I think, examined a specimen where a fragmentary crystal or stem could not be found in some part of the slide. In making the diagnosis, therefore, it will not do to depend upon a few imperfect crystals and stems scattered throughout a field of well-formed crystals, but rather must we depend upon the generally shrunken appearance of the bulk of the crystals, together with the fragmentary forms.

And I would especially emphasize the importance of the somewhat beaded or jointed appearance of the shaft of the featherlike crystals. There are also many quite perfect crystals to be found in a pregnant specimen. It is evident, therefore, that we can not base a diagnosis of pregnancy on the mere presence of a distorted crystal, as we would tuberculosis upon the presence of a tubercle bacillus, or malaria on the presence of the plasmodium. It involves a question of judgment and experience to decide as to the number and character of the abnormal crystals. I have not acquired the same confidence in diagnosing pregnancy by the changes referred to as the author of this method, but believe that when present they form valuable corroborative evidence of the condition. The changes, however, are not always well enough marked to give me confidence in the diagnosis. A larger experience may increase my skill and confidence.

Recapitulation.—When conception occurs the triple phosphates in the urine change in form. They lose their feathery appearance, the change beginning at the tip and progressing toward the base. One side only may be affected, or both, leaving only the shaft and perhaps a few fragments adhering. The shaft assumes a beaded or jointed appearance. These changes commence within twenty days after conception, and are most marked in the early months and almost absent in the later months. When the death of the foetus occurs, the phosphates resume their normal appearance. This observation I have not had the opportunity of confirming.

Conclusions.—1. The change in the urinary phosphates pointed out by Dr. Gray occurs in a very large percentage of pregnant women.

2. This change is not equally pronounced in the urine at the same period of gestation in different women nor at consecutive examinations of the urine of the same woman.

3. When recognized it forms a strongly presumptive evidence of pregnancy.

4. This sign is recognizable very early. (Dr. Gray, in a personal letter to me, states that he has made many diagnoses as early as ten days after conception.) It is therefore of the greatest value when other signs are of the least value, or not present at all.

5. A diagnosis of probable pregnancy can be made without a physical examination or without exciting the suspicion of the patient.

TREATMENT OF INTRALIGAMENTOUS AND
RETROPERITONEAL UTERINE MYOMATA.*

BY WILLIAM H. WATHEN, M. D., LL. D.,

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I assume that finally small intraligamentous or retroperitoneal myomata requiring surgical treatment will be removed *per vaginam* by nearly all abdominal and pelvic surgeons. Experience has demonstrated that such tumors may be more expeditiously and successfully removed through this channel with less shock, more speedy convalescence, and freedom from subsequent intestinal adhesions to the abdominal incision and ventral hernia. The dangers of injury to the ureters, bladder, or large vessels is diminished, and hæmorrhage is with few exceptions easily controlled. If the myomata are entirely within the broad ligaments, or in the uterus without extending to the mucosa, they may sometimes be enucleated without removal of the uterus, leaving the woman capable of bearing children. In broad-ligament myomata it is usually best to attempt enucleation before hysterectomy, and if, as the operation progresses, it becomes necessary, the uterus may be removed. If small myomata lie in the anterior wall of the uterus, they may be enucleated by reaching them through the utero-vesical fornix, after the method of anterior colpotomy as practiced by Dührssen and Martin, carefully suturing with catgut the cavity from which the tumor is removed, and closing the vaginal incision; and small tumors in the posterior part of the uterus may likewise be enucleated through the utero-rectal fornix. Where it is possible to save the uterus in the removal of intraligamentous or retroperitoneal myomata, or in the removal of any uterine myomata, it should be done if the tubes and ovaries are healthy. There are, however, many cases of intraligamentous or retroperitoneal myomata that can not be removed without performing hysterectomy, and in such cases both ovaries and tubes should also be removed.

* Read before the American Gynecological Society, May 28, 1896.

The technique of morcellation is so well known that it is hardly necessary to enter into any description of the various methods devised and practiced by vaginal hysterectomists. Each case, however, may in details require a separate method, and the operator must be prepared for any emergency. Where the tumors can be enucleated without excessive hæmorrhage, the uterine and ovarian arteries need not be interfered with; but in many cases the conditions are such that, both in enucleation without or with hysterectomy, it is necessary to ligate or clamp the uterine arteries before attempting removal of the tumor or the uterus.

But the especial purpose of this paper is to describe a method of operating in hysterectomy for intraligamentous or retroperitoneal myomata too large to be removed *per vaginam*, and so firmly wedged in the pelvis as to make the abdominal operation difficult and protracted, or even impossible without great danger to important structures. The chief dangers in these cases are wounding the bladder, hæmorrhage from inability to ligate the uterine arteries, and injury to the ureters in attempting such ligation or in enucleation, if removal is to be solely accomplished through the abdomen. Since in every hysterectomy we should, after the woman is on the operating table, thoroughly wash and disinfect the vagina, and sometimes curette the uterus, it will require but little more time to separate the vagina from the cervix and ligate or clamp the uterine arteries, which, if possible, should be done in continuity near the pelvic wall beyond the vaginal branches. We may then enucleate and separate the lower part of the uterus from its attachments, being careful to hug the uterus or tumors so as not to open the peritoneal cavity. The patient having been previously prepared for a coeliotomy, the abdomen is now opened and the operation completed from above. The adhesions, if any, having been separated, the ovarian arteries are ligated close to the pelvic wall, thereby practically cutting off all blood supply to the uterus or tumors. Having made a circular incision through the capsule entirely around the uterus and tumors near the fundus, which in some instances may include both ovaries and tubes, enucleation may be rapidly proceeded with, hugging the uterus or tumors so as to make no opening in the capsule, or the capsule may be incised at any point or after any method the operator elects and best meets the indications. The danger of hæmorrhage or of wounding the ureters or bladder is reduced to a minimum. If after enucleation there is

hæmorrhage, it may be easily controlled by ligatures or tampon; and if a ureter is injured and is not immediately implanted into the bladder, the leakage will be extraperitoneal, and the urine passing out through the vulva will not cause peritonitis or sepsis. The capsule may be sutured in the lower part of the abdominal wound, removing all superfluous tissue, and the incision closed above. It will be clearly seen that by this procedure, when the operation is completed, all wounded surfaces are extraperitoneal, so that there is no danger of intraperitoneal hæmorrhage, sepsis, or adhesions. There will usually be no ligatures or sutures left in the peritoneal cavity except the two on the ovarian arteries; it is possible that in some instances a small catgut suture may be necessary to close connective-tissue spaces on either side caused by removal of the ovaries and tubes. The cavity of the capsule and the vagina may be, as conditions may indicate, loosely or tightly tamponed with iodoform gauze, so that we have double drainage, and may finally cleanse or disinfect the sac cavity and vagina by passing a stream of sterilized water or germicidal solution from above out through the vulva. The same technique may be followed in removal of other forms of uterine myomata, and I believe will tend to lessen the mortality in the practice of the average surgeon, because it is more easily and more rapidly completed. I am sure any one who has done much vaginal hysterectomy will experience less difficulty in separating the vagina from the cervix and in ligating or clamping the uterine arteries from below, and I believe it is the correct treatment even if afterward the removal of the myomatous uterus is completed after the usual abdominal methods. Experienced operators may speedily ligate the uterine arteries from above, but with the average gynaecologist the procedure is protracted and dangerous. I do not believe it wise to leave the lower part of the cervix in these operations, for it serves no good purpose, and may possibly cause subsequent trouble.

The technique of Dr. Pryor's operation in total hysterectomy for intraligamentous myomata, where the tumor unfolds but one broad ligament, will be more rapid and more successful by adopting the vagino-abdominal method, and then ligating both ovarian arteries before dividing the broad ligament on the free side so as to enucleate from below. But I have seen several cases where both broad ligaments were separated and the tumor so tightly wedged in the pelvis that it was impossible to reach the uterine arteries

from above until after extensive enucleation and excessive hæmorrhage; the dangerous hæmorrhage may now be controlled if the uterine arteries are ligated *per vaginam*.

In cases where the broad ligament on one side is free it may be incised at its upper border and separated to the vaginal opening, and the uterus and tumors enucleated from below and the capsule fixed in the abdominal incision; or, if the operator objects to the extraperitoneal treatment of the capsule, it may be sutured and left in the abdominal cavity. The same technique may, in a degree, be possible in some cases where the tumors have involved both broad ligaments.

In Dr. Senn's operation for uterine myomata, while the capsule is fixed in the abdominal wound the uterine arteries are ligated at the bottom of the sac, and there is no drainage through the vagina; hence suppuration is more extensive and convalescence prolonged.

While I have not seen a description of vagino-abdominal hysterectomy where the above technique has been carried out, it may be that others have performed the same operation; and I feel sure that when it is given a fair trial, it will in many cases meet with the approval of successful operators.

CASE OF PORRO-CÆSAREAN SECTION.*

By G. M. BOYD, M. D.,

Physician to the Philadelphia Lying-in Charity.

An ideal operation is one which is premeditated. The patient's history is carefully studied, elaborate preparation is made, and with a corps of assistants and nurses in readiness, each step goes on uninterruptedly. In very many of our obstetric operations it is not possible to fix the day and hour; but we are called upon often at night, tired out with a long labor, to perform some of the gravest procedures in surgery. Sometimes it is after two or three have attempted the forceps operation, the patient already infected; again, it is after the patient has been in labor days, the attendant hoping

* Read before the Philadelphia Obstetrical Society, June 4, 1896.

Nature may still be equal to her task. The case which I have to relate is an illustration of this condition of affairs—an operation *in extremis*. Her history is as follows: Mrs. M., a colored married woman, a primipara, was admitted into the Philadelphia Lying-in Charity May 21, 1896. She had been in active labor two days. I found that she was pregnant at term, and that it was complicated by subperitoneal myomata; several tumors could be easily felt through the wall of the abdomen, one decidedly pedunculated. Fœtal heart could not be heard. On internal examination, the cervix was found to be dilated to the size of a silver dollar. A foul discharge issued from the uterus, indicating that decomposition had been going on some time. Careful measurement of the pelvis developed another phase of the case—we were not only dealing with a case of impossible labor, due to myomata, but with a flat rhachitic pelvis. The following were the measurements:

Intraspinus measurement.....	21 centimetres.
Intracystal measurement:.....	22 “
External conjugate measurement.....	17 “
Diagonal conjugate measurement.....	8 “
True conjugate measurement.....	6.5 “

Cæsarean section was immediately performed, the patient's condition not justifying delay. With the assistance and counsel of my colleague, Dr. Oliver Hopkinson, the abdomen was opened. The uterus, which was the seat of many fibroids (intramural, subperitoneal, and pedunculated), was then delivered. An incision was made into it, and with this a quantity of foul-smelling gas escaped. The dead infant was easily but slowly removed, that the uterine wall might contract gradually upon its contents, the placenta. Now the lower segment of the uterus was grasped by Dr. Hopkinson, and pressure made upon the uterine arteries. The removal of the uterus just above the internal os was rapidly and easily performed. The right and left broad ligaments tied and cut, the peritonæum was stripped from the front and back of the mass. A ligature was now thrown around both uterine arteries, and rapidly with the knife the uterus was removed, leaving a stump seven by five centimetres. The cervical canal was now disinfected, and a cuplike depression of the uterine tissue cut away. The cervical canal was closed, and finally the peritonæum brought together over the stump by interrupted sutures of fine silk. The peritoneal cavity was freely washed with large quantities of sterile water, and the abdominal wound

closed with interrupted through-and-through silkworm-gut sutures. The patient's pulse was 150 before the operation, and when placed back in bed it was about 180. We rather despaired of her reacting from the shock of the operation, but to our surprise, at the end of twenty-four hours, her condition was much improved, temperature normal, pulse 140. Large rectal injections of normal salt solution did much, I believe, to bring about her good condition. She is now in her third week, and is rapidly convalescing. In practicing pelvimetry, we always feel a little doubtful of the accuracy of the measurement of the true conjugate, but, with the abdomen opened and the uterus removed, we were able to make a direct measurement of 6.5 centimetres.

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EDITORIAL.

BACTERIOLOGY AND GYNÆCOLOGICAL PRINCIPLES.

On a certain occasion, while discussing with a very eminent pathologist, whose fame is international, various gynæcological fads and fancies of our day, we stated our belief that a certain pathological condition, which is held by many to be the *Alpha* and *Omega*, the starting point and focus, of nearly all the diseases of women, did not exist in its simple and primary form. The pathologist took exception to our statement and maintained that he believed he had found the condition in question in the specimens which he had examined. We thereupon exclaimed that, if this were true, the experience of Dr. X., whose disciple we were, would count for nothing, that he would be obliged to give up his entire theory of gynæcology and to repudiate a remarkably successful practice of over thirty-five years, founded upon theories absolutely contradictory to the one under discussion. The answer of our friend surprised us. It was: "Why, doctor, I think he would be very foolish to do that; the immense clinical experience of Dr. X. must be of much greater value than anything we pathologists may believe." In this broad-minded statement of an expert lies the true gospel of the bacteriologists.

They merely proclaim what they have found, as the product of

one disease or as a causal factor of another. Nor do they claim inerrancy; as true scientists, their watchword is *Discretion*. Their aim is to reconcile the results of their investigations with those of *clinical experience*, for they know that the truth can be found only in this concordance and that it is to this cumulative experience to which they must at last submit as to a Court of final appeal. No, there can be no antagonism between the bacteriologist and true gynæcological principles. As with true science and revealed religion: both emanating from a common Fountain Head of Truth, the one can but become the exponent of the truth of the other.

But well may the bacteriologists cry out to be "saved from their friends!" That dangerous thing, "a little learning," has enabled many, while loudly proclaiming their respectful and admiring adherence, to bring undeserved odium and ridicule upon a very valuable and long-suffering branch of our profession. It has long been almost a daily spectacle to see men rush out with their little baskets filled with the green fruit of half-considered theories and aborted experiences and endeavor to place them upon the heads of bacteriologists, hoping thereby to send their wares to a safe and profitable market. Fortunately for the rest of us, most of these are soon dumped by the wayside. But many, on the other hand, are unconsciously carried to their goal and are thus given a fictitious value, to the detriment of the public. "But why," we are asked, "do pathologists lend themselves to this imposition?" The explanation is easy: They can not help themselves. They assert facts and for these they ask belief; but they do not assume any ability to make individual or special application of these facts to the actual course of disease. This is where a great misunderstanding has arisen. They proclaim the discovery of certain facts which, together, may be applied as general principles to disease. It is our province as practitioners, and ours alone, intelligently to submit these pathological theories to the bar of our clinical experience, if we have any, and so to judge of their truth; but to reverse this procedure is ridiculous and proves that we have not faith even in our own professions. With reverence may it be said that as scientific discovery is to revealed religion so is the science of pathology to intelligent clinical experience: the handmaid and helper always, the preceptor and arbiter never. If gynæcology to-day among the majority of its professors rested upon exact fundamental principles, as it is capable of doing and should do, instead of being, as it is, a hotch-

potch of a few half-understood facts and many fads and fancies, threaded together upon an illogical line of reasoning—a science, indeed, of “lightning changes”—the modern bacteriologist would be a blessing and a safeguard. We have made of him a *fetich*.

It is a wise saying that the sermon is apt to fly wide of the mark which does not “point a moral and adorn a tale.” Let us, therefore, take a flagrant example of the torturing process through which the modest statement of bacteriological “findings” has been put by not a few adventurous professing gynæcologists, who would fain help out an uncertain knowledge of their own specialty by a misconception of pathological science. There has been no fact, probably, so absolutely established by centuries of unvarying clinical experience than that irritants applied to the periphery of the body are capable of producing immediate changes in the circulation in the interior of the body, even to the extent of acute inflammation. A familiar example is that of a healthy young girl who, just at the time of her first period, let us say, but before the flow has begun, gets her feet wet and remains thus exposed for a considerable time. The usual immediate result is stoppage of the oncoming menstruation with severe pain, due to acute and unrelieved pelvic congestion, with the not infrequent sequel of pelvic cellulitis or peritonitis and sometimes general peritonitis, together with all the objective and subjective symptoms of these forms of inflammation. This is a sequel of facts so common, that it falls within the experience of the general practitioner much more frequently than within that of the specialist. Yet many “gynæcologists,” especially among recent graduates, have been taught to smile contemptuously at the suggestion that exposure to cold and wet be capable of causing inflammation. “Why?” we ask. “Because inflammation can only be caused by a germ introduced from without.” “Why, again?” “Because pathologists have always discovered the presence of a germ in inflammatory conditions and have proved their ability to induce inflammation of the same character *de novo* by the inoculation of cultures of this germ. Moreover, they have *not found* this germ existing in a free state in tissue of normal character.” This is the argument and, on the strength of it, a conclusion is adopted which casts aside as worthless clinical experience which is universal and constant. “But,” we ask again, “here is the case of a virgin, whose vagina has never been opened and whose cervical canal has never been dilated. Is it reasonable

to believe that, just at the time of this exposure, the germ forced its way through a practically sealed vagina and internal os, infected the walls of the congested uterus and thus extended itself to the cellular tissue and peritonæum? And if this inference is not reasonable (which it is not), how can inflammation in such a case be explained by the theory that the germ of inflammation must always come from without?"

Here we have, on the part of our opponents, an example of vicious reasoning, where a conclusion is first adopted and the premises considered afterward. A gynæcologist sure of his observations and confident of the facts which he had derived therefrom would, in the face of such apparent discrepancy between pathological dicta and clinical fact, at least begin to doubt the value of his interpretation of the former. In doing this he would realize, first, that the theory that germs must come from without the body leaves many cases of inflammation without explanation and is, therefore, inadequate. Secondly, he would see that the negative statement that the germ in question had *not* been found in normal tissue was in itself not an argument contradictory of the existence of such germ, at least in an undeveloped or preliminary condition of its existence.

Of one thing we may be sure: No theory can be accepted, even as a working hypothesis, which does not clearly explain or account for every fact within the limit of its application. It is owing to the neglect of this basic principle in reasoning that so many absurd theories and modes of practice in gynæcology have sprung up, have been vauntingly advocated for a time and then silently dropped. And yet it was all, for the most part, quite unnecessary.

A few years ago certain men, here and abroad, revived the old idea that all pelvic inflammation was septic in character and could be derived only by direct extension from without. The uterus, therefore, became to them a sink or cesspool of filth and a direct menace—unhappy organ!—to the health and even life of the woman whose genital apparatus had ever wandered from the straight path of health. From the endometrium through the tubes to the peritonæum is the only open and direct route for extension of contagion; therefore, our enlightened friends boldly announced that the only form of inflammation which had any existence within the pelvis, outside of the imaginations of old fogeys, and apart from the parenchyma of organs, was peritonitis. They asserted their convictions

on this point not only loudly but scornfully; they seized upon the science of modern pathology and shook it in the faces of those who understood the premises but saw no reason to accept the same conclusions, much as the Chinese were wont to stampede their enemies in battle by means of terrifying masks and representations of grewsome monsters. All this we heard and saw but yesterday, yet where is the gynæcologist among us to-day who will dare to maintain that *pelvic cellulitis does not exist*?

For very shame's sake, let us leave the bacteriologists in peace to pursue their investigations and to enrich the world by the discovery of new truths. We may rest assured that they will still struggle on, even if we refrain from drawing their conclusions for them, and in their name, before they have worked out their premises.

It is time, we think, that the profession should resent and reprobate the present popular custom in accord with which each man who wills may use bacteriologists as cat's paws to draw his little pile of chestnuts out of the fire and thus escape burning his own fingers.

REVIEWS.

DIAGNOSIS AND TREATMENT OF DISEASES OF THE RECTUM, ANUS, AND CONTIGUOUS FIXTURES. By S. G. GANT, M. D. The F. A. Davis Company, Publishers, Philadelphia.

In a recent communication an eminent rectal specialist has stated that in a large percentage of the cases referred to him the rectal trouble was secondary to disease or malposition of adjacent organs, and that in order to effect a cure it was often necessary to go far beyond the domains usually ascribed to rectal surgery. He refers particularly to gynæcological cases. Gynæcologists generally admit the production of symptoms referable to the generative apparatus, caused by disease of the rectum, as, for instance, the causative relation of the rectal ulcer to the condition known as vaginismus. Yet how few are familiar with the normal appearance of the rectum or its most common diseases! It seems to us that some knowledge of these affections would be of value to all who practice gynæcology.

The book before us is not all that could be desired. It is neither exhaustive nor could it be called classical, but it is eminently practical, and should be of particular value to the general practitioner.

In the treatment of internal hæmorrhoids eleven surgical procedures are discussed, varying in severity from the application of chemical caustics to Whitehead's operation. For the majority of cases the evidence is in favor of the clamp and cautery. We think the author correctly estimates the value of Whitehead's operation when he says: "We can not commend it for the treatment of ordinary or even bad cases of piles, for two reasons: First, they can be cured by a less difficult operation; second, complications frequently accompany, and undesirable results may follow. We heartily indorse the operation in long-standing cases accompanied by frequent hæmorrhages, where there are *no distinct pile tumors*, but where the veins of the entire rectal wall are engorged and extensively dilated from the external sphincter upward for two or three inches." The chapter entitled *Railroading as an Ætiological Factor in Rectal Diseases* is an innovation in medical literature. As the result of his observation, the author states that seventy-five per cent. of all railway employees who have been running on trains for a term of five years or more, suffer or have suffered from some disease about the rectum and anus. The diseases are caused by irregularities in living, erect position assumed by employees, and the irregular, jarring motion of the train.

The chapters on Cancer and Colotomy are written by H. W. Allingham, of London, and are valuable additions to the work. The sixteen chromo-lithographic plates are striking and fairly well executed. (G. H. M.)

A MANUAL OF OBSTETRICS. By W. A. N. DORLAND, A. M., M. D.
W. B. Saunders, Publishers, Philadelphia.

Notwithstanding the unusual number of excellent works that have recently been written upon this subject, a cordial welcome should be extended to the volume before us. While not as pretentious as some that have preceded it, it is one of the most complete and satisfactory treatises that has come into our hands.

The presentation of the subject is rational and systematical. The teaching is sound, and embodies the most recent accepted theories. The operations are described with a minuteness of detail that

is admirable. Asepsis and antisepsis is discussed with the thoroughness that its importance demands. The illustrations are profuse and well executed, and aid greatly in the elucidation of the subject. The binding is neat and attractive, and the typographical work excellent. We predict a widespread popularity for this book.

(G. H. M.)

CORRESPONDENCE.

“HOW SHALL WE TREAT UTERINE PROLAPSE AND RETROVERSION?”

PHILADELPHIA, August 1, 1896.

To the Editor of the American Gynecological and Obstetrical Journal:

SIR: I wish, with your permission, to add a few words of my own to that most interesting and judiciously minded editorial in the June number of the JOURNAL on How shall we treat Uterine Prolapse and Retroversion. For the sake of the selfish, pecuniary interests of the average gynecologist you should, Mr. Editor, take special precautions to prevent that editorial from being read by the unprofessional public who have so long trusted in our skill and judgment. It should remain strictly esoteric. But the medical public may well be taken into our confidence in such matters, and if this sort of publicity is given to common-sense views of our fads we may be helped without being hurt. I refer particularly to your proper arraignment of the too common practice of removing the uterus for functional disease, and, I may add, for any form of curable organic disease. I have protested in our councils here for years that annihilation of any organ was not cure, and was a perversion of our duties where cure was possible. The self-evident nature of such truths has made some of us weary of their exposition, but the need of constant active protest is apparent to any one conversant with the continued practice of many surgeons and the frequency of unnecessary hysterectomy.

I may criticise, however, the prominence given in the editorial to mechanical conditions as the primary causes of prolapse and retroversion, while giving full adherence to the continued truth of Emmet's claims of the importance of inflammatory shortening of uterine ligaments and “chronic” cellulitis. The fault with many

gynæcologists at this point of their reasoning is that they admit the existence and results of microbic invasion outside the uterus while forgetting this ætiological factor within that organ. The mechanical theory of the prime cause of displacements, excepting those produced by lacerations of the pelvic floor, arose before the germ theory was understood, and it has survived as an anachronism. It should be remembered that the uterus is extremely movable in its normal condition, being capable of being placed in all the pathologic tilted, bent, and low-down positions, and many worse ones, without harm, the normal position or angle being regained as soon as the disturbing force is removed. The mechanical difference between health and disease is therefore merely that the organ does not regain its position after disturbance—a change in the dynamic relations of the pelvis that points to lessened resistance rather than increased disturbing force, and impels us to assume that trophic changes must precede the mechanical ones, and be of far greater importance from a clinical point of view.

Clinical investigation will readily verify this course of events by showing that nutritional changes, evidenced by leucorrhœa and menorrhagia, frequently antedate the fall or jump that sends the patient to the physician. It is practically impossible that a healthy uterus could be misplaced by the trivial accidents that some young women ascribe as the presumed cause. Even moderately tight corsets rarely produce immediately bad results in this class, who usually possess tense abdominal muscles.

The modern facts of germ infection in the shape of a catarrhal invasion of the uterus offer the true theory of the initial lesion in many affections characterized by enlarged, displaced and abnormally shaped uteri, the mechanical and circulatory conditions being secondary and sequential additions to the morbid process. Viewed in this light, our failure to cure many subinvolutions by repairing a healed tear in the cervix is intelligible, for we are only closing the door through which the infection has already entered. The mechanical conditions being secondary, the value of pessaries is also limited, and their use curtailed in many cases by considerations that teach us that muscular structures are rarely helped by splints or other immobilizing agencies.

The belief that the major portion of this class of pelvic affections result from congestions and proliferations of bacterial origin, with consequent trophic changes in the glandular and muscular

structures, is, after all, only a modern explanation of views presented by Bennett in 1850, before gynæcology had been invaded and conquered by the ultrasurgical enthusiasts; and it is odd to note that these views are still largely indorsed in the pathologic portions of most recent text-books, though no reference is made to them in the departments devoted to treatment.

G. BETTON MASSEY.

TRANSACTIONS OF THE PHILADELPHIA OBSTETRICAL SOCIETY.

Stated Meeting, June 4, 1896.

The *President*, E. E. MONTGOMERY, M. D., in the Chair.

Dr. WILLIAM H. PARISH read a paper entitled A Case of Nephrectomy for Hydronephrosis.

A Case of Nephrotomy for Pylonephrosis.

By FRANK W. TALLEY, M. D.

(See page 284.)

The Advantages of Incision and Drainage in Some Cases of Pyelitis.

By RICHARD C. NORRIS, M. D.

(See page 288.)

DISCUSSION.

Dr. ROSENTHAL: I regret exceedingly that when Dr. Parish read his paper I was not present, but the question placed before the Society by Dr. Montgomery in regard to the amount of urea secreted is one which interests me very much. Last winter I had a patient in the Polyclinic Hospital who suffered from pyelonephrosis of the right kidney. The patient had subpubic abscess operated upon, and after operation was complete and he was on the road to cure, he began to show symptoms of melancholia. All operations on the genito-urinary tract are prone to produce some

sort of mental disturbance; but this patient showed such decided symptoms that I had a proper study made of his urine daily by a student of mine (Dr. Golden). I was surprised to find but nine tenths of one per cent. of urea; there was probably five per cent. of pus in the urine; serum albumen was detected, but the amount of urea was so scanty that we supposed the nervous symptoms were due to that cause. I immediately placed him upon lithic acid, and the urea increased from nine tenths of one per cent. to two and a half per cent., with a clearing up of all symptoms; and this patient, whom we thought would die, was sent home on Monday last in a pretty good state of health, and probably will be cured.

If the report of this case can clear up the mystery in these cases alluded to by Dr. Parish, I shall be glad. I think in all these pus cases the urea is greatly diminished. I believe the normal amount should be five hundred grains in twenty-four hours; but in cases of pyelonephrosis, pyelitis, etc., with the urea diminished to such an extent, the nervous symptoms show the cause. I believe if we make a special study of the urine after the operation of nephrectomy in these patients, and employ the proper measures to increase the percentage of urea, the operation will be a success. Delafield, of New York, reports some interesting work in this line. Unfortunately, the case I have reported occurred in a male; probably if it had been in a female some of the gentlemen of this Society would have examined and studied it.

In regard to the cause of the disease, this case was undoubtedly due to the gonococcus. I have no doubt about this, as the case was studied from all sources. Bacteriological examination discovered streptococci and staphylococci. Also in another case I have seen—a case of perinephritic abscess in which podalic version was performed—there was no other cause for this disease than version. The person who performed version was perfectly cleanly and very skillful. The patient made a good recovery after operative procedure.

Dr. PARISH: I would like to say a word in reference to urea. I think we all know the amount of urea excreted in health in the same individual varies very greatly. I think it is not wise to say five hundred grains constitute the normal amount of urea excreted daily. The amount of urea in the same individual varies under different conditions. Three hundred grains is not considered abnormally small for the average person under ordinary circumstances

to excrete, the normal amount varying from three hundred to six hundred grains.

I think, too, we should take into consideration in estimating the urea the size of the individual and the habits of eating; this will guide us in judging as to whether or not the kidneys are sufficiently active. The patient on whom I operated was a very small woman, not eating very much nitrogenous food at any time; and the examination of the urine was made near the time of the expected operation, when she was on a restricted diet, taking almost no red meat, and hence urea was very small in amount. I am sorry Dr. Kyle is not present this evening, as he could probably have given us some valuable information on this subject, as he has given a great deal of attention to the urine in non-surgical and in surgical cases. We are apt to be misled in declining operation when we find the amount of urea is small, unless we take into consideration the size of the individual and the character of diet and the amount of exercise taken.

There is another point in the history of Dr. Talley's case, which he has himself emphasized, and that is the liability of a septic urethritis, followed by cystitis and ascending inflammation, occurring from the use of the catheter. Some years ago, when I was one of the obstetricians of the Philadelphia Hospital, we had some very energetic young men (and we are all very energetic when we are young) who desired to test the urine of women immediately after labor, and they catheterized a number of patients immediately after labor for a number of days, with a view of getting the urine unmixed with lochial discharges. As a result of their practice (done without my knowledge), two deaths occurred from sepsis, and autopsy showed acute inflammation of the kidneys; evidently the septic inflammation had traveled upward. I think there is still prevalent in the city, and to a much larger extent throughout the country towns, the old practice of passing the catheter underneath the clothing, and often without special aseptic precautions, without proper cleansing of the hands and instrument, and nearly always without any preparation of the part itself. I would also say in reference to this that I became an active gynecologist at St. Agnes' Hospital four or five years ago. When I went there, after almost every operation on a female, where it was necessary to have the catheter used, urethritis and cystitis followed, because they were not then passing the catheter with proper precautions. After appropriate methods were adopted,

we found the catheter might be used without danger of infection. In one instance now under my observation, following removal of the appendages, the catheter has been used three weeks without any symptoms of irritation of the urethra arising.

Nephrectomy for Tuberculosis of the Kidney.

BY CHARLES P. NOBLE, M. D.

(See page 291.)

By way of addendum the author said :

I have now a patient in bed from whom I removed a large suppurating kidney about three weeks ago. This patient had been under treatment for supposed cystitis for nearly two years, and there is no doubt whatever that she has had tubercular disease in the kidney all that time. Her urine was loaded with pus, and other evidences of cystitis were presented on chemical examination. But the history of the case was very definite that the kidney on that side was involved. I catheterized the opposite ureter, and the urine from that side was relatively healthy, although not absolutely so. This case had had a temperature to my knowledge of 103° every night for over two months. There was undoubtedly mixed infection in the case, because the urine was loaded with all sorts of germs, particularly streptococci. I was able in that case, through a lumbar incision extended down parallel with the crest of the ilium, about twelve inches long, to take out this very large kidney (it was six inches in length, three and a half inches across the upper end, two and a half inches across the center, and two inches across the lower end) without opening the peritoneal cavity.

This patient did perfectly well for two weeks, when she developed phlebitis in her left leg. She is now suffering from this complication, and what the outcome will be I do not know. I think there is good ground to believe that her prolonged sepsis had a good deal to do with her phlebitis.

This case is a strong argument in favor of a careful examination for tubercle bacilli in all cases having renal pain or pain in the renal region. I believe had the doctor in attendance in this case had his attention drawn to the possibility of kidney disease, and had a diagnosis been made and the kidney removed a year ago, that the patient would have been restored to health.

DISCUSSION.

Dr. R. C. NORRIS : Some observations of my own patients bear out the statement made by Dr. Parish. I find women coming to the Preston Retreat are often ill fed and have not had an abundance of nitrogenous food. It is customary to ascertain the total quantity of urine passed by each patient in twenty-four hours, and then to estimate the work of the kidneys by determining the total urinary solids. A very rough practical method of estimating the total solids that we employ is to multiply the number of ounces voided in twenty-four hours by the last two numbers of the specific gravity, multiplying that product by one and one tenth, which will give us the total solids excreted in twenty-four hours.

After the patients have been in the house ten days, and have been better fed, I find the total solids abundantly increased.

Dr. Talley's remarks as to the great care that should be employed in the use of the catheter are very pertinent. A case of almost fatal infection came under my observation some time ago that has made me very loath to use the catheter in puerperal cases. It may interest the members of this Society to know that in a series of five hundred confinements in the Preston Retreat the catheter was used only fifteen times. Other methods to obtain emptying the bladder are available, and are not fraught with danger.

Dr. Talley did not bring out in his paper, I think, that there are some experiments on record to show that the otherwise healthy urethra will frequently contain micro-organisms, and, be the care never so great in antisepsis of instrumentation, it is thus possible to carry into the bladder these micro-organisms, which find a favorable soil for multiplication and rapid development. It is therefore a good rule to omit the catheter if we can possibly do without it.

Dr. C. P. NOBLE: With reference to the influence of the nervous system on the amount of urine passed, I was obliged to remove a kidney some weeks ago for another cause. For the first time in my experience as an abdominal surgeon I destroyed a ureter. It was a case in which enormous hæmorrhage, due to extra-uterine pregnancy, had taken place in a patient who had a mixed condition of affairs in the pelvis (an ovarian tumor and old inflammatory trouble), so that the hæmorrhage took place underneath dense adhesions. I doubt very much whether it was a genuine case of rupture into the broad ligament; still, everything was so mixed up I

could not be sure about that. If it was a case of hæmorrhage into the broad ligament, it is the first I ever saw. In any event, the blood clots extended pretty nearly up to the kidney under the peritonæum. There was apparently a thick adhesion running up on the mass of clots, and, as the patient was in bad shape, to save time I clamped the adhesions, cut through them, and at the end of a very bad operation, when the patient was in collapse, I found that I had cut off the ureter almost up to the kidney and the other end I was never able to find. I suppose I cut it away with the mass of adhesions. In that case we were in the predicament that there was nothing to do with the ureter. You could not do anastomosis, you could not sew the ureter into the bladder. I made a fistula at the primary operation. This was a very nervous woman. The idea of having another operation upset her very much. We postponed operation because of loss of blood, but finally a date was set for it. A study of the urine discovered that but four ounces in twenty-four hours were passed. As I intended to take out one kidney, I did not think it good judgment to operate. Immediately after the operation was put off she made thirty ounces out of that one kidney. Then another day was set for operation, and the urine diminished to four ounces. Believing this due to fright, I operated. The next day after operation she made twenty or thirty ounces, showing the part nervousness played in the reduction. It is very important to study the amount and the quality of the urine which is being passed by the kidney, which we do not propose to take out before doing a nephrectomy. If one kidney is sound, I should not hesitate to take out a very badly damaged kidney, even though the amount of urine was not normal.

Dr. PARISH: I think it has been pretty well established that after abdominal operations there is an increased activity of the remaining kidney, or both, if one is not removed, as a result, it may be, of etherization or operation. This is due to hyperæmia of the kidney. If, however, the kidneys are already inflamed, the hyperæmia may induce renal failure, so that sometimes both kidneys cease to act, and some sudden deaths which occur after operations have been traced to hyperæmia of both kidneys, even when the operation was not upon the urinary tract. Especially does this hyperæmia occur when an intra-abdominal operation has been done. In healthy kidneys the hyperæmia induces an increased flow of urine.

Diagnosis of Pregnancy by the Changes in the Microscopic Appearance of the Urinary Phosphates.

BY WILLIAM E. PARKE, M. D.

(See page 316.)

DISCUSSION.

Dr. EDWARD ROSENTHAL: I would like to ask whether Dr. Parke has used the ammonium magnesia mixture in the non-pregnant as well as pregnant urine. I think he will find, as I have, that triple phosphates are present in both samples alike, and that therefore the mixture is of little value.

Dr. NORRIS: I would like to know how many samples from non-pregnant women, Dr. Parke?

Dr. PARKE: In reference to Dr. Norris' question, I would say in almost every instance I examined a non-pregnant specimen with a pregnant in comparison.

Dr. HAMMOND: I would like to ask whether Dr. Parke examined the urine of women menstruating. I have read somewhere that there is a like condition of the phosphates during this period. It would be interesting to know if there is the same condition during the menstrual period as during the period of pregnancy.

Symphyseotomy.

BY GEORGE M. BOYD, M. D.

(See page 294.)

DISCUSSION.

Dr. LONGAKER: I had the pleasure of seeing this patient while she was in labor, and of examining her and seeing the operation. There was no doubt at all in my mind, and in the minds of the others who saw her, that the delivery of a living child without pubic section was an impossibility. At the time the pubic section was made the head was still quite high up. The subject of symphyseotomy, of course, brings up the entire matter of treatment and management of labor in cases of contracted pelvis. I agree fully with Dr. Boyd in regard to the propriety of the operation in an appropriate case.

I have myself operated three times with a successful result, so far as the infant is concerned, in two cases, and without any bad result for the mother in any of the three cases. The mothers all made good recoveries. In one the child was lost, because of persistent and prolonged traction of the forceps, which also complicated the convalescence very much. That is, not the symphyseotomy, but the forceps operation did harm.

The difficulty is in the decision as to the necessity of the operation, as to just what degree of contraction, as Dr. Boyd has said, will necessitate division of the pubic symphysis. And I realize that it is not always possible to say that a given case may not be delivered by version or by forceps. (The repeated application of forceps and prolonged traction certainly renders the result of symphyseotomy bad.) In two cases since my last operation I have erred in choosing the induction of premature labor, expecting that I would be able to deliver successfully. In these cases symphyseotomy should have been done. The want of success is only explainable by assuming the existence of contraction of the transverse diameters of the pelvis, which I did not appreciate from my measurements. The cases were instances of the generally contracted pelvis, and not of the simple flat, as I had concluded. This conclusion was based on the existence of normal or but slightly contracted external measurements. It is a well-known fact that narrowing of the transverse pelvic diameters renders the case unsuitable for version.

The practical point of the matter is the want of some means to ascertain the exact degree of pelvic contraction. I know of no better method practically than the manual, and I have used internal pelvimeters. The pelvimeter of Hirst does not give me exact measurements.

Dr. PARISH: In reference to the relative merits of symphyseotomy and premature labor, I think so far as the delivery of a living child is concerned, probably in almost every instance in which symphyseotomy would promise good results in a case, if the case is under observation, premature labor at about the eighth month will give a living child with less risk to the mother. I have chosen this method in a few instances in preference to symphyseotomy. In these instances the child has been born alive, and is still living. Premature delivery in selected cases, and judiciously delivered, ought to give good results. If, however, in a premature delivery

we apply forceps or, if it is necessary, do a version, the chances are the child will not be born living, for premature children do not stand forceps or version well. In premature labor it is safer to let Nature complete delivery after labor has begun. I think there is little risk to the mother if aseptic precautions are maintained. The old statistics showing great mortality in produced labors doubtless depended upon the septic complications at a time when asepsis was not appreciated or practiced.

Dr. NORRIS: I think there is no problem in practical obstetrics more difficult to decide than the proper course of management of labor obstructed by a contracted pelvis. If the case is seen before term, I agree with Dr. Parish that the induction of premature labor is not only justifiable but preferable. It has been so in my experience. The care of the child subsequent to its birth will have much to do with its future growth and development. A hospital case, born two or even three months before term, brought up in the slums of the city and improperly fed, stands a poor chance of survival; but with proper care of the infant—and I have carefully studied the statistics in this country as well as abroad—induction of premature labor shows a large proportion of children alive. So far as symphyseotomy is concerned, my experience is limited to two operations performed by myself, and I have assisted at six others, and this experience has convinced me that symphyseotomy is not a trifling operation by any means. In my own cases both the mothers survived, and are now perfectly well. The first child was born dead, the second child was born living, but died of an intercurrent pneumonia at the end of a year. In all the cases I have had an opportunity to observe there has been something about the operation to convince me that it is not one whose maternal and infantile mortality can be classed with that of premature labor. To say, as has been claimed, that the mortality for the mother and child is better under symphyseotomy I think would not be borne out by statistics of published, not to mention unpublished, cases.

Again, as to the decision of method of procedure when the patient is in labor at term. There is a problem besides that of pelvic measurements. I take it we have means to measure accurately enough the capacity of the pelvis, and to estimate the conjugate diameter. Dr. Hirst's pelvimeter—a modification of Schultz' instrument—is a good instrument, but it should be remembered that one must know how to use it, and that its successful use requires

two individuals who understand how to make the measurements. After we have obtained the conjugate diameter there are other problems. I recall a case with a conjugate of eight centimetres, in which the baby was very large; we trusted to version and lost the child. Autopsy showed a rupture of the longitudinal sinus.

The same woman came again to the Preston Retreat, and, in spite of the unfortunate result of the first delivery, the size of the child decided the choice of version, which was done with good results. The first baby weighed nine pounds, the second weighed seven pounds.

It is a good rule carefully to take the pelvic measurements, then to introduce the hand into the vagina, and by combined examination to notice how much protrusion of the head there is above the symphysis. By careful palpation of the child's cranium one can learn its approximate relative size to the pelvis; its hardness, and the separation of sutures which indicate the degree of compressibility of the head; and, finally, the distance between the sagittal suture and the sacral promontory when the head is partially engaged, will indicate whether or not the head can pass the obstruction safely. These things must be taken into consideration as well as the pelvic diameters.

When the pelvis measures over eight centimetres, and when the size of the head is judged to be approximately normal, oftentimes version will succeed, oftentimes forceps. In my own experience more children have been born alive with forceps than by version.

Then as to the position of the woman during labor. It is claimed for the Walcher posture that at least a centimetre is gained in the conjugate diameter by allowing the woman's legs to hang extended over the edge of the bed, the buttocks being slightly elevated, and in high forceps operation I always resort to this posture with, I believe, distinct advantage. When we have a pelvis below eight centimetres, with a well-formed or large-sized child, the nearer will be the indication, I believe, for symphyseotomy. With a conjugate of seven centimetres or less, with the same conditions, the Cæsarean operation should be chosen if the case is in the hands of a man competent to do an operation of this kind.

I was much struck with Dr. Boyd's remarks as to fewer symphyseotomies having been recorded within the last year. I am glad this is so. Symphyseotomy is an operation which should be

reserved for experts and for men with a large hospital experience to guide them. I believe that when the cases of minor degrees of pelvic deformity are critically studied the indication for symphyseotomy will very infrequently arise.

So far as induction of premature labor is concerned in my own hands, with the facilities offered by the incubator, special care, etc., I should prefer to induce labor rather than to allow the woman to go to term and do symphyseotomy.

Dr. L. J. HAMMOND: I would like to know what has been the experience of the members present who have done symphyseotomy at the subsequent deliveries—that is, whether the delivery was made any easier or not when another child was born. In a case I have in mind, where a living child was delivered after symphyseotomy, at the next delivery it was found absolutely impossible to get the same amount of separation, the result being a stillborn child delivered by axis-traction method after a very prolonged labor. It is perfectly natural to expect such a condition as this to occur in a goodly number of cases, since we would not expect to get the same mobility that we would at first operation, especially if sufficient inflammation be produced in the slightly mobile joints to cause complete ankylosis; the capacity of the pelvic outlet would, of course, under these conditions, be rather diminished than increased.

Dr. LONGAKER: My third operation was a second operation in the same patient; the amount of separation and amount of space gained was just as great as in the first operation. The convalescence in that patient was more satisfactory than in the first operation. Practically it was that of a normal delivery. This in answer to a point brought out by the last speaker.

Dr. BOYD: Symphyseotomy *vs.* Premature Labor has been discussed, I believe, by this Society. While induction of premature labor has its advantages, it must be remembered that it is not always easy to induce premature labor. The introduction of a bougie into the uterus is not always successful, and one difficulty that arises is the selection of time for operation. If the labor is induced much before the two hundred and fiftieth day of gestation, the chances for the child are not good. Then, again, if we err in the other direction, the object of the operation is lost. The case I operated on by symphyseotomy came to me late. I did not have an opportunity of considering the induction of premature labor, and,

even if it could have been considered in that case, I would have followed the same course, considering the history. My experience with the induction of premature labor has not been very satisfactory. I induced labor about five or six months ago in a case with almost the same history as the one described this evening. Failing to bring on labor, after introducing the elastic bougie (it having remained twenty-four or forty-eight hours in the uterus), I found it necessary to give the patient ether and do dilatation of the cervix. This brought on labor, but, unfortunately, the breech presented, and through the rapid delivery that followed the cord became prolapsed, and this serious complication caused a disastrous result. From the history of the case I have narrated this evening the operation would not seem a difficult one. The only difficulty in this particular case was probably from my inexperience—that is, in not reaching the symphysis when the knife was first inserted.

Dr. HENRY LEAMAN read a report entitled

A Case of Tetanus following an Abortion at Five Months.

On Wednesday, October 30, 1895, I was called to see Mrs. M., aged thirty-six years, the mother of seven children, five of whom are living; two died of diphtheria under two years; she had three miscarriages previously. She was subject to convulsions in her childhood until she was seven years old. She was going about the house and apparently well, but had had a slight flow of blood since the Friday previous, October 25, 1895, which she said was probably brought on by lifting ashes. She had no pain or fever, and was in as good health as usual. I ordered her to bed, and gave her the tincture of the chloride of iron. She continued the same at my daily visits until Saturday, November 2d, when I found her in pain, with evidences of dilatation of the cervix. She expelled twins of five months at 5 P. M., the afterbirth remaining until I saw her about 9 P. M. During that interval there had been considerable loss of blood, but not any greater than I had frequently seen under similar circumstances. The placenta was removed without any difficulty, and the uterus washed out with a sublimate solution (1 to 2,000) of boiled water. The intra-uterine injection was repeated during the five succeeding days. She was fed liberally and the iron continued. There was no rise of temperature, and no tenderness of the abdomen. I saw her on the 9th of November,

and, continuing well, I allowed her to get up and go about with care, saying, as an additional restraint, that I would see her again. When I saw her on Wednesday, November 13th, she was downstairs, and had been down for several days attending to her house, and seemed well except that she was complaining of an increased amount of saliva in her mouth. I suspected a slight salivation from the uterine injections, and gave her directions for a mouth wash, thinking it would pass away. On November 15th I was sent for, and found her with trismus of the jaw. She complained of nothing else, and had no rise of temperature and no spasm. Within forty-eight hours after she began to have clonic spasms, coming on at long intervals in the extremities and in the sides. On the 19th of November, before the opisthotonus developed, I gave her an injection of antitoxine serum. This seemed to have no modifying effect, for the opisthotonus developed after and continued increasing in violence and frequency, and hence the injection was not repeated. There was no rise of temperature until the day preceding death, which occurred on November 23d.

This case is the first I have seen in thirty years' experience in practice among women. I have never seen it following normal or abnormal labor at full term. And with an experience of twenty years with intra-uterine irrigation for abortion, had believed it almost-impossible to occur.

In this case I used the sublimate tablets, although I have generally preferred a mild carbolic solution for internal irrigation. The only ætiology in this case seems to have been the exposure in a damp kitchen to cold, preceded by the loss of blood and the traumatism of the evicted ovum. This corresponds with what I have seen of tetanus following wounds, and clearly points out the traumatic nature both of normal and abnormal labor. Tetanus has seemed to develop from exposure to cool air in case of wounds in hot climates. In this case she exposed herself to dampness in an outkitchen. The bacillus must have escaped unharmed by the sublimate injection. I would not call the test of serum therapy a crucial one, but would simply say it was negative in result.

DISCUSSION.

Dr. ROSENTHAL: Tetanus following miscarriage seems to be more prevalent than we are led to infer from the statistics of the

board of health. Cases follow after three months' miscarriage. Dr. Wood, in a speech made during the banquet at the College of Pharmacy, stated that there had been three cases of tetanus in the Maternity in the University of Pennsylvania. Dr. Wood attributed these cases of tetanus to the water, which was employed from the Schuylkill.

Dr. Ball told me of a case occurring at a hospital in this city in which two injections of tetanus antitoxine were given, followed by recovery. I believe if the antitoxine would be used in the enormous quantities directed by Kitasato the outcome would be different. We have had the idea that one dose will cure, but the rule should be as in any other disease, that, if the antitoxine does not give a marked effect in a few hours, we should increase the dose to double or triple the quantity, and, if still no relief, to four times the quantity. I am sorry Dr. Leaman's case gives the antitoxine treatment a setback. It has given very good results at the St. Agnes Hospital.

Dr. NORRIS: I should like to throw out incidentally a hint. The prevalence of tetanus in the city during the past few months is rather peculiar, and investigations have been going on in the Bacteriological Laboratory of the University of Pennsylvania that point to the Schuylkill water as a means of carrying the tetanus poison. This brings up a practical point, which is, that all water should be boiled before being used, no matter what antiseptic is employed. It would seem that the physician does not do his whole duty to his patient unless he boils all the water he uses for douches, whether an antiseptic is added to the solution or not. Boiling is a prerequisite for complete and safe antisepsis. In the University Maternity the water, contrary to directions, was not boiled. In the hospital and private work under my own personal care the water has been boiled, and we have had no such cases.

Case of Porro-Casarean Section.

BY GEORGE M. BOYD, M. D.

(See page 323.)

Official Transactions.

FRANK W. TALLEY, *Secretary.*

TRANSACTIONS OF THE NEW YORK OBSTETRICAL
SOCIETY.

Stated Meeting, May 19, 1896.

The *President*, Dr. H. C. COE, in the Chair.*Suppurative Dermoid Cyst.*

Dr. S. MARX: This specimen was taken from a young woman, married about five years, and who had one living child. The doctor was told that the husband had a hunterian chancre one year before marriage. About a year after the marriage the first baby was born. During labor he noticed that she had a specific ulcer, which, under the influence of the advancing head, tore back to the rectum, which on account of the sore he did not attempt to sew up. She lost one baby after another. Syphilitic treatment did her no good. She became pregnant again about four months ago, and began to have serious, intense pain on her right side. Apparently the annexa on that side were in perfect order. As the pregnancy advanced and the uterus rose out of the pelvis the pain became excruciating. Finally, a small tumor, which rapidly increased in size, was discovered to the right of the uterus and behind it. It was elastic, movable, and extremely painful to the touch. There were no other symptoms of extra-uterine pregnancy, but, on account of the extreme pain and rapidly increasing tumor, there was made a probable diagnosis of extra-uterine with an intra-uterine pregnancy. Operation was insisted upon, and the abdominal route chosen because of the size of the uterine tumor, which, had the vaginal route been chosen, would have necessitated considerable traction. The operation took about twenty minutes, and the growth was removed unruptured. That was three weeks ago, and she is now nearly four months along, and has not aborted. In order to anticipate any possible damage from the syphilis hypodermic injection of bichloride was used. The case is interesting as showing what can be done and done safely in removing abdominal growths in the presence of pregnancy.

DISCUSSION.

THE PRESIDENT said that the case was almost identical, except the syphilis, with one which he reported a few weeks ago. The question of dermoids complicating pregnancy was extremely important, because we were confronted not only with a neoplasm, but with a neoplasm which is subject to injury, and if injured will cause serious trouble. He had been criticised for selecting the abdominal route in his case, but was supported by the majority of the Fellows.

DR. E. A. TUCKER said that he had only seen one of these cases, and in that one the history was very unfortunate. It was brought into the hospital with the dermoid cyst impacted in front of the head. The mass was beginning to slough away, and was so soft that the finger could be pushed into it. The exact nature of it was at first doubtful. Some pus was withdrawn by a needle, and it was at first thought to be a case of pelvic abscess or pyosalpinx. It was opened through the posterior wall and evacuated. The condition of the patient was so bad that she nearly collapsed on the table, and he deferred doing anything more at the time. She developed rapid sepsis, and died the next morning. She was already septic when first seen. She had a history of something like two days' labor. At the necropsy a large dermoid as big as the two fists was found, with some pus still in it wedged in near the brim. Of course that case was hopeless, but he has wondered what could be done under similar circumstances if the woman were in good condition. He would like to be informed by the gynæcologists present what would be the best treatment, supposing the case is seen early, when the woman is still in good condition, but the cyst in front of the head wedged in tight—whether laparotomy would be best or working through the vagina?

DR. E. E. TULL said that the operation of Dr. Coe had impressed him, and, theoretically, he thought the abdominal route would be much better in these cases. One does not know whether he is going to find a suppurating mass or a dermoid cyst. By the vaginal route there is more or less drainage immediately afterward. He prefers the abdominal to the vaginal route in any movable tumor. If he had a woman in labor, with a tumor in the pelvis that seriously interfered with the process of labor, he would certainly do a laparotomy in preference to any other procedure, and he would do that

with any movable cyst he thought was likely to rupture in the beginning of labor.

Dr. TUCKER inquired whether he would do it if the head was in the pelvis.

Dr. TULL replied that he would, with the head directly in the pelvis and the tumor a suppurating one. The abdominal wall is not such an assistance to labor that it can not be dispensed with.

Dr. TUCKER said he failed to see how that would help, with the head already advanced in the pelvis.

Dr. TULL said that, as he understood the case of Dr. Tucker, it was one which was pressed upon. Another problem comes up: Suppose a cyst is found on both sides in a woman four months pregnant or a tumor that had to be removed. Could that case go on to full term? He had not known of any case cited that would prove that, although he saw a case where in a mistaken diagnosis both ovaries and tubes were removed. That went on for six weeks, and by an accident labor was brought on, and the child seemed to have been alive up to the time of labor, and gave every evidence of it. The question is if both ovaries and tubes are removed, whether there would be enough blood supply to the foetus, and whether it would be the proper operation to leave the uterus and foetus or to remove the uterus, as is now indicated, in every case?

The PRESIDENT said he could reply to that question. He had seen a reported case of double ovariectomy during pregnancy, and the patient went on to full term. As to the query of Dr. Tucker, he would say that he had occasion to operate on a patient three and a half to four months pregnant, with a large mass filling Douglas' pouch and projecting into the vagina. There was fluctuation, the sac appeared to be on the point of rupture, and the question was whether it contained pus or not. The patient had no temperature. She had had peritonitis, and he thought there must be pus. He made a laparotomy, and found that the mass was undoubtedly an abscess. He closed the abdomen and went in from below, evacuating nearly half a pint of pus, washed out the sac, and the patient did perfectly well. Pregnancy has now advanced to five months. It is not exactly a parallel case, but it shows that it is possible to operate successfully during pregnancy even on an abscess. During labor he would go in from below, and try to keep the sac so clean as not to infect the uterine cavity.

Dr. H. N. VINEBERG thought it would have been unjustifiable

to operate through the vagina on the case presented, because there would have been a possibility of rupture, and the manipulations of the uterus would have been so great as to have lacerated it to a considerable extent. In cases where you want to operate, and shortly after a puerperal process, the vaginal route is contra-indicated, because conservative surgery can not be done through the vagina unless the uterus is manipulated a great deal. The point of differential diagnosis recalled to his mind a case which was even more difficult. He saw a woman in dispensary practice, who said that as far as she knew she had been pregnant eight to ten weeks when she began to bleed, and had been having a great deal of pain and hæmorrhage. On examination, he found a tumor to the right of the uterus about the size of a cocoanut, quite elastic, and not particularly sensitive. The first time she called the uterus seemed to be pretty large—more enlargement than would be expected from an ectopic gestation. The second time he examined her the uterus seemed to be only slightly enlarged, and the tumor was about the same size. He made a diagnosis of ectopic gestation, and had her operated upon. The tumor proved to be an ovarian cyst with intra-uterine gestation. The woman made a good recovery, and went on to full term. In reference to the other point, he would take the same ground as the President, and where labor has set in, and the tumor is low down in Douglas' *cul-de-sac*, he would go in from the vagina rather than from above, and wash out very thoroughly.

Dr. MARX (in closing) said that he thought that the abdominal route would have been an absolute failure, for the uterus was larger than he had any idea of, and the tumor was certainly larger than he expected. And even if able to reach the tumor, he would have been compelled to exercise considerable downward traction upon the uterus. She had really the abortive habit, and the chances were that if she had not aborted she would have died as a result of the rupture of the mass into her peritoneal cavity. The question in his mind arises as to how a woman can carry a tumor of this kind for a number of years and present no symptoms, yet suddenly sup-pur-ation occurs in the sac and the intense pain comes on.

Preliminary Report of a Case of Cæsarean Section and Total Extirpation for Sarcoma Uteri.

BY H. N. VINEBERG, M. D.

I was called, May 2d, by Dr. Charles Schram to see Mrs. H. in consultation. She was twenty-four years old; had been married six years; had two children, the youngest being two years and a half, and was now pregnant seven months and one week. Had always enjoyed good health, but during this pregnancy did not feel quite as well as with the other pregnancies; still, did not feel ill enough to see a doctor until two weeks ago, since when she has been suffering with agonizing pain in the left hypochondrium. Even large doses of morphine did not give her entire relief. I found the woman in bed moaning with pain, though she had had a large dose of morphine a few hours before. She seemed to be in fairly good condition, good color of the lips and mucous membranes, and exhibited no cachexia. On palpating the abdomen, a hard, tense tumor, reaching midway between the umbilicus and zyphoid cartilage, was felt. None of the small parts of the fœtus could be made out, the uterus giving the impression of a large bowling ball, so hard did it feel. On vaginal examination, the posterior wall of the cervix and lower uterine segment formed a hard, nodular mass, which completely filled the pelvis. Under chloroform the same conditions presented, the uterus not growing any softer, but remaining in a condition of tetanic contraction. The diagnosis of a malignant growth in the cervix and lower part of the uterus was made, and Cæsarean section advised. On the day following—May 3d, at St. Mark's Hospital—I did a Cæsarean section, having first turned out the uterus through the abdominal incision, and constricted the cervix by means of rubber tubing. A small, feeble child was rapidly extracted. It weighed three pounds, and lived twelve hours. Thus far the operation did not consume more than five minutes. The question that now forcibly presented itself for solution was, What further course to pursue? The uterine wall was studded with nodules, and was in a condition of fatty degeneration, and hence very friable. Sutures would merely tear out. In addition, the cervical canal was so encroached upon that drainage through it would be an impossibility. Hence a conservative operation, as I had intended, was out of the question. To do a Porro and

leave the greater mass of the disease behind would mean death from sepsis, and probably from hæmorrhage within a very short time. The other alternative was to attempt a total extirpation. Though keenly alive to the risks of such a procedure, I saw no better way of getting out of the dilemma which the condition presented. In this decision I was strengthened by the recollection of a few cases recorded recently in the literature in which a sarcomatous growth had rapidly developed during pregnancy, and underwent rapid retrogression during the puerperium. If I could safely remove the entire uterus any inaccessible nodules would probably undergo a retrograde process, and the woman's life might be spared for an indefinite period. In order to be able to work more expeditiously I amputated the uterus at about the level of the internal os, cauterizing what there was of a canal with the Paquelin. The growth filled the pelvis completely like a wedge; but there appeared to be a little more room on the right side, and I began my enucleations on that side. The main object kept in view was the saving of blood; every inch of ground had to be fought with clamps and ligatures. I kept on with my work on the right side, after peeling off the bladder in front, until the vagina was entered. I then worked my way from below upward on the left side (using clamps entirely now), until the whole mass was enucleated. The remainder of the operation consisted in passing ligatures and deep hæmostatic sutures about the clamps. In this manner there was surprisingly little loss of blood. The pelvis was packed with iodoform gauze from the vaginal cavity upward, and the part of the abdominal incision that had not been closed immediately on turning out the gravid uterus was now sutured with through-and-through silkworm-gut sutures. The patient was in remarkably good condition at the end of the operation, considering its extent and the difficulties it presented. For the first twenty-four hours following it the patient's condition was rather critical, and she required considerable stimulation. But from this on for the next nine days her condition was good; the bowels moved on the second day, and her temperature ranged from 99.5° to 100.5°; pulse, 96 to 120. For the past six or seven days she has been having temperature (101° to 104°; pulse, 110 to 130) due to sloughing of the tissues left behind in the pelvis. Her abdominal wound healed by primary intention, excepting at the lower angle, where a small mural abscess had formed. But this is healing nicely by granulation. On vaginal inspection with the speculum, there

is an immense cavity to be seen, at the sides of which there is some sloughing tissues. On palpation there is nothing to be felt but the pelvic walls and their immediate coverings, and an infiltration in the left pelvic wall apparently connected with the bone.

A microscopical examination of the growth by Dr. Schwyzer showed it to consist of spindle- and round-celled sarcoma—consequently a mixed sarcoma. The pelvic cavity is irrigated several times a day with various antiseptic solutions, and the sloughs are removed as soon as they can be readily detached. The danger now seems to be that the patient will succumb to exhaustion before the sloughing process will cease.

DISCUSSION.

The PRESIDENT inquired how far the pregnancy was advanced.

Dr. VINEBERG replied that it was the first week in the eighth month.

Dr. MARX asked why, in view of the fact that the woman had a malignant growth of this kind, involving the glands and the vagina, he did not wait until full term, knowing well that the process was practically incurable, and giving the child the benefit of one month more of uterine life.

Dr. VINEBERG replied that it was impossible to wait any longer; the patient was in such pain that it was out of the question. The operation was done for the purpose of relieving her sufferings, and the pain was evidently due to the tetanic contraction of the uterus trying to expel its contents. Had the operation not been done when it was, it would not have been many days before an intra-abdominal rupture would probably have taken place. The uterus was thinned out in one place; fatty degeneration had taken place.

Dr. A. P. DUDLEY inquired how the doctor knew there would have been a rupture in a few days. He thought it was very close calculation.

Dr. VINEBERG said he did not expect his words to be taken quite so literally, but he thought from the condition he might reasonably suppose it would have taken place. The woman was suffering to such an extent that three quarters of a grain of morphine did not relieve her.

Dr. A. P. DUDLEY inquired what "sloughing" was taking place—whether it was the uterus, the stumps, or the piece which was clamped?

Dr. VINEBERG replied that it was of the pelvic tissues lining the pelvis, the parts that had been clamped and afterward ligated at the time of the operation.

Dr. A. P. DUDLEY presented a specimen, a tumor which he removed from a woman who weighed two hundred and thirty-two pounds. She was thirty-eight years of age; had been married twenty-one years. Had a child by her first husband, a boy twenty years of age at this time. Had one miscarriage at six months, eighteen years ago. Also one miscarriage in 1890, at four months, a pregnancy by the second husband. She had suffered from menorrhagia for a number of years; in fact, had always been a free bleeder at the time of menstruation, so much so that rubber sheets were required on the bed. Had pains during the first two days, and pains at the close of menstruation. Last winter, noticing that one portion of her abdomen was harder than another, she saw Sir John Williams, who told her she had a fibroid tumor, and that she ought to let it alone. He told her husband to treat her well, as she might not live very long with it, and not under any circumstances to have it removed, because she would not live more than three days, and would probably become insane if she did live; that the reflex nervous conditions resulting from hysterectomy were of that nature. He removed the growth day before yesterday. The uterus contained twenty-two fibroids. He tried to do it in the Trendelenburg posture, but she was so heavy he could not keep her in position. He removed it by the suprapubic method, covering the stump as he has always done, using fine silk ligature for the broad ligaments, and sewing the peritonæum over the stump with catgut. He also removed the appendix, which was about three times as long as a normal appendix should be. The patient is perfectly comfortable, without a rise of temperature, and he is sure she will recover without any trouble.

Dr. VINEBERG said that in a case of this kind, where the only symptom was hæmorrhage, why not tie off the uterine arteries. He had a case in point where a woman was bleeding, had diabetes, and was rendered very acutely anæmic. He tied off the uterine arteries, and the patient has been doing very well.

Dr. J. D. EMMET said he was glad to hear Dr. Jarman discuss the subject of hysterectomy for fibroids from an abstract point of view, and he wished to add something in reference to the propriety of Dr. Dudley's operation in this particular case. He believed with

Dr. Jarman that the mere presence of a fibroid, or a number of them, in a uterus, is no indication for hysterectomy or excision of the uterus, unless such symptoms be caused by the fibroid that the woman's life is endangered or her health seriously impaired.

Dr. DUDLEY said that he operated for hæmorrhage, for pain, and because this woman was a professional woman, who could not follow her vocation on account of the hæmorrhage and pain.

Some Unusual Cases of Obstetrics.

By E. A. TUCKER, M. D.

(See page 273.)

DISCUSSION.

The PRESIDENT, Dr. Coe, said that the best way to discuss the paper would be to group the cases: First, lesions, then labor after ventrofixation, and, lastly, abnormalities of the foetus. The interesting point about the tear of the vestibule was the fact that it was spontaneous, and was not made by an instrument; and the speaker wished to have an opinion as to whether the proper treatment was arrest of the hæmorrhage by simple pressure or by hæmostatic forceps. The second case was interesting, because there were apparently all the signs of death of the foetus, and yet it was living. In the third case the speaker wished to have an opinion in regard to the advisability of immediate operation or delay. The discussion on Case IV—rupture of child's lung during traction—might be extended to all visceral ruptures, as those of the suprarenal capsule, kidney, and liver. In Case VI—depressed skull—it was proper to inquire whether this was a true congenital malformation or was possibly due to pressure.

Dr. J. CLIFTON EDGAR said that, as to the question of hæmorrhage of the vessels about the vestibule, due to laceration, etc., he did not think there could be any difference of opinion that the proper treatment is to ligate bleeding vessels and then take a needle and catgut and sew up the wound. Such a case had recently come to the hospital, with two arteries spurting freely from the right of the clitoris. He ligated the vessels, passed a sound in the urethra, and with needle and catgut made a running stitch, closed the laceration, kept her two days, did not interrupt her pregnancy, and then sent her home all right. He had seen two such cases after symphyseotomy, where there was too much stretching of the joint, hæmorrhage resulting, and in both cases catgut suture was used.

In the case brought into the hospital, pressure had not controlled the hæmorrhage. As to depression of pubic bones, he had seen two or three which were said to be spontaneous. In two cases they were said to have occurred without any operative interference during labor, and from the presentation and position during labor, and from the history of the cases, he could not say but that it was prolonged pressure from the promontory of the sacrum. It is still an uncertain question what causes intra-uterine amputations. He would like Dr. Tucker to say whether there was any abnormality, or any bands or adhesions in his case. That is considered a most common cause. As far as his observation goes, he has never been able to find that there has been a remnant of the amputated extremity. Concerning the case of abnormal attitude, with the child's head pushed around at an angle of forty-five degrees, that is a common occurrence, especially in shoulder presentation, where the head has gone into the iliac fossa and the body has rotated spontaneously, or has been caused to rotate by the hand of the operator. The French school teaches that the baby's head can be turned around not only at forty-five degrees, but at ninety, although he would hesitate to rotate it to that extent. As regards malposture intra-uterine, he believes it is much more common than we are led to suppose by those who have not done a number of versions. As to the ventral congenital hernia, he has never seen such a large case as the doctor has described. He has seen a number of small ones, and has always let them alone. He delivered a child in January in such a case, and left the hernia alone, and it has practically disappeared.

Dr. MARX stated that he found the lacerations of the anterior commissure involving the vessels of the clitoris very common, and what he finds difficult in those cases is not so much to stop the hæmorrhage as to find where it comes from. So far as the treatment is concerned, he does not agree with Dr. Edgar that all are of one opinion. Two weeks ago, in doing a forceps operation, he got a tear up around the clitoris. It was not a spouting, but sharp bleeding. He first tried pressure, then pressure combined with a measure which he had found of great value, the local application of peroxide of hydrogen. A continuous catgut suture did stop the bleeding for twelve hours. At four o'clock in the morning the bleeding started in again in spite of the catgut. By pressure of the iodoform tampon he succeeded in checking it.

The most interesting case reported is that of general emphysema of the child. He can not conceive of its occurring without rupture of some part of the respiratory tract. He asked whether the author of the paper instituted Schultz' method of resuscitation in the newborn baby, or whether the catheter was used to aspirate the larynx, or whether insufflation was used. All these things must be taken into consideration. By the catheter small lesions can occur in the upper part of the tract, or from a too forcible blowing in of the air by insufflation lesions of the upper tract can occur. It was claimed when Schultz' method was first used that visceral lesions of the foetus, such as hæmorrhage into the liver, etc., were directly brought about by its use. Long before it was used there was an epidemic of visceral lesions in such cases during his term of hospital service, which appeared to be due to venous congestion in those organs which are surrounded by tissue or peritoneal covering readily torn. The depression of the skull is quite a rare condition. It seems to him that those cases are due to prolonged pressure, not due to traumatism during birth; this would not produce that condition, but would lead to fracture of the skull.

Dr. J. DUNCAN EMMET said that an interesting point was in reference to tears about the clitoris, concerning which Drs. Edgar and Coe had spoken. He agreed with Dr. Edgar that any tear of that sort should be closed with sutures. Only in that way can one be absolutely certain of stopping the hæmorrhage. If Dr. Marx had attempted, in the case he reported, to close the tear by interrupted sutures he would have found that the hæmorrhage must be controlled, because the parts are thus absolutely coaptated, which is the ideal form of pressure. With a continuous catgut suture one might very easily not control the hæmorrhage except for a short space of time. There was another interesting case—that in which pregnancy took place in a uterus which had undergone hysteropexy. Dr. Edgar had said that "the pregnancy spoke very well for the operation of hysteropexy." The speaker, on the contrary, thought it spoke very well for the pregnancy. He had already referred to this subject of fixation and forcible suspension of the uterus in front and had argued against the operation, which is not, in his opinion, indicated.

Dr. RALPH WALDO said that the subject of pregnancy, delivery at term, with apparently normal labor, after hysteropexy, is one that is very interesting. Many cases are reported by a great many care-

ful observers, and in the case reported this evening the ventrofixation was one that persisted after a normal labor. That fact will have to be admitted. Admitting it to be a clinical fact, he believes it is due to the formation of a ligament that will hold the uterus to the anterior abdominal wall after the principle that is very similar to the formation of all the ligaments of the uterus, excepting the round ligaments—that is, by folds of the peritonæum, which contain a certain amount of cellular tissue, also blood-vessels which nourish the parts. He thinks that is accomplished where ventrofixation is performed, by simply attaching a narrow piece about the breadth of one's finger down the anterior abdominal wall to the entire length of the anterior surface of the uterus. He has had occasion to look into the abdominal cavity in several instances, varying from one to three years after ventrofixation has been performed, and in these cases he found that there was a ligament about an inch in length. In one case the ligament went from the upper portion of the fundus right down to the bladder, and attached the uterus from the fundus to the bladder to the anterior wall of the abdomen, so that the uterus would swing freely. It is simply due to the fact that the peritonæum of the anterior abdominal wall is attached to the uterus, and it is pulled out, leaving two layers of peritonæum similar to the broad ligaments. He has seen ventrofixation performed after a method which is incorrect, by taking a tenaculum and dissecting off nearly the whole anterior surface of the uterus, or the whole peritoneal covering, right down to the muscular substances. That is wrong. But where temporary sutures are put in the surface should be scraped slightly, so as to freshen it. The criticism that many have made is not quite borne out by the clinical experience as much as it would seem to be by theory. It is not fixation at all. It is a suspension of the uterus in the pelvic cavity, when the ligaments are not adequate to hold it, as they normally are.

Dr. A. P. DUDLEY said he had seen three or four cases of hæmorrhage about the clitoris where the tissues had been lacerated. It is a frequent occurrence, especially where the delivery is a tedious one, and he has invariably sewed them up at once, and never had any trouble in stopping the hæmorrhage. He thinks that is the proper method. The sutures should be taken pretty deeply, and, if continuous catgut is used, it is perfectly safe if the sutures are close enough together. As to congenital ventral hernia, he had

seen three cases in his twenty years of experience, and had seen none of them operated on. The last was a few months ago, in the Post-Graduate School. He advised against operation on the child until it was a year old. That is the most sensible thing to do, because it is seldom that a child will survive such an operation. If you can stretch the abdomen and keep the hernia in position you decrease it somewhat, and give the child a year's growth, and can operate with better success. The rupture of the left lung he has had no experience with, but if the author of the paper will look up the *Transactions* of this Society he will find a case reported of rupture of the lung following laparotomy. The woman gave a history of having had pleurisy, and after abdominal section for removal of pyosalpinx she acted strangely, and on the eighth day the tissues of the neck began to puff out in the same position that the doctor reported in the child. She gradually filled up with the air until her hips were filled, and the side of the head and face, and her eyes closed. Finally, she died. He had a consultation, but was not allowed to do anything. As to the case of pregnancy complicated by hysteropexy, he reported not long ago to this Society a case where a woman went to full term and was delivered and the uterus remained in position. We do not look at it in the right light; if we did we would see at once that the uterus can move, can sufficiently accommodate the child, and still not make very much traction, because of the fact that the uterus does not travel in a perpendicular line. It simply follows the curve of the pelvis, and becomes dependent more or less over the pubic arch. He thinks it is wrong to put in any form of buried sutures. But he does pass sutures into the uterus that close the abdominal incision. There is no permanent buried suture introduced. Concerning the case of abnormal attitude of the child in the uterus, he thinks it is of very frequent occurrence; especially where the shoulder presents, the child's head must be shoved to one side in order to let the shoulder get to that position.

Dr. EDGAR inquired whether there were any symptoms of sepsis in the laceration of the vestibule. His reason for asking was because of the teaching, in which attention was always called to the fact that if the vestibule is ruptured there is a rise in temperature.

Dr. TUCKER (in closing), alluding to the inquiry made by Dr. Edgar as to the case of intra-uterine amputation, said that he looked the specimen carefully over and found no amnion bands. As to

the case of abnormal attitude, it was the right shoulder which was down. It was not simply a pushing of the head off into the iliac fossa. This was an unusual twisting of the neck, bringing the back to look one way and the face another, and, in addition to that, the right shoulder presented. As to sepsis from the tear around the clitoris, this patient ran a perfectly normal temperature. The remark has been made that hæmorrhages from the clitoris are common. That is true, so far as slight ones are concerned, but he can not agree if it refers to serious ones. As to the rupture of the lung, the only thing Dr. Marx mentioned that may have had some bearing upon the case was the insufflation. The child was insufflated, but just how forcibly he does not remember. He thinks it must have been a subpleural rupture of the lung. As to the depressed skull, there is no question about this being a long-continued pressure formation of some kind, as a result of the original position of the child. He was glad to have Dr. Emmet bring out the point about the interrupted suture controlling hæmorrhage better than the continuous. He had seen many cases of that. He did not quite understand Dr. Emmet's remark about pregnancy and the hysteropexy, because Dr. Krug, whose case he reported, said that he had had nine others in which he had similar good results. When we see these things clinically we must accept them. If you have a woman who after operation goes three years without any symptoms, when she had symptoms before, and she becomes pregnant, and goes to full-term delivery (and there are ten such cases reported right here), we must accept as a clinical fact that that operation has done some good, no matter what our theoretical objections to it may be.

Dr. J. D. EMMET said that his remark may have seemed startling, but the reason that he spoke in that way was that he believed hysteropexy was not indicated for the conditions in which it was done. He knew from experience that local treatment, with or without plastic operations, would accomplish in a normal way the purposes for which the hysterectomy was done. That pregnancy is carried to term in the presence of hysteropexy there is no question, but at the present time there is great discussion in regard to its use during the childbearing period, and there is a great deal being said against its use on this account both here and in Europe, particularly in Germany.

Dr. TUCKER (continuing) said he was glad to hear the explana-

tion offered by Dr. Waldo in his remarks about what he had seen in these cases after operation. In the case of ventral hernia there was infection in the skin where the hernia joined the abdominal wall. The child was beginning to run a temperature. It was already up to 101° , and the point was whether to let it go on or to operate.

Official Transactions.

ARTHUR M. JACOBUS, *Recording Secretary.*

TRANSACTIONS OF THE CHICAGO GYNÆCOLOGICAL
SOCIETY.

Stated Meeting, June 19, 1896.

The *Vice-President*, HENRY P. NEWMAN, M. D., in the Chair.

Extra-uterine Pregnancy.

Dr. T. J. WATKINS: I have four specimens of extra-uterine pregnancy which I have recently removed and which I exhibit for two purposes: First, to call attention to the frequency of the condition, and, second, to show that the tubes do not manifest evidence of having suffered from chronic inflammatory disease. The first specimen is from a case of incomplete abdominal tubal abortion. By examination you will notice that the tube does not show evidence of any inflammatory thickening. The second specimen is also one of incomplete tubal abortion. It seems quite remarkable to get a tube dilated to this size, which is fully two inches and a half in diameter. The third specimen also shows no inflammatory disease of the tube; there was very little dilatation of this tube before rupture. The rupture occurred about the sixth or seventh week of pregnancy. The patient had severe hæmorrhage, and was operated upon during this stage.

The fourth specimen is also probably one of incomplete tubal abortion, with subsequent formation of a clot in the tube. The tube is also enlarged. The other appendage was the seat of inflammatory disease; the uterus was large and covered with adhe-

sions, necessitating a hysterectomy. One of the specimens was removed on the 7th of May, another on the 11th, and another on the 16th.

Dr. NEWMAN: Did you operate through the abdomen in all of the cases?

Dr. WATKINS: In one instance I operated through the vagina.

Dr. BANGA: Where did you go in through the vagina—posterior or anterior to the cervix?

Dr. WATKINS: Posteriorly. The tube lay down on the floor of the pelvis, and it was very accessible through an incision posterior to the cervix.

Abscess of Appendix.

Dr. JOHN A. LYONS: I desire to exhibit this specimen of an appendix, which I removed last Saturday night, at the Chicago Hospital, from Clara S., aged seven years and a half.

On the previous evening I was called to see her, and found her suffering from severe pains, which radiated over the entire abdomen. There was serious doubt as to the cause of the pain. I prescribed a three-grain powder of calomel, which I ordered given at once, to be followed the next morning by a dose of castor oil. I requested the mother to keep the child at perfect rest, as I believed she had appendicitis. If her symptoms were not very much improved by the following day, I determined to advise an operation. Early next morning I was notified that the child was so much improved that it would be unnecessary for me to call; but later in the day—I think about 5.30 P. M.—I was again called, and found her suffering from a similar attack of pain, but which I thought was more acute, over the seat of the cæcum. Then I advised, and indeed insisted upon an operation. Very reluctantly, and I believe against the advice of a physician and surgeon of high standing in the profession, the parents of the child allowed me to operate. Upon cutting down over the seat of the appendix, I found it twisted around the cæcum and very much elongated. The approximal end was perfectly normal, but the distal end, swollen as large as my little finger, apparently about ready to rupture, pointed directly into the peritoneal cavity. The appendix at this point, as you see, is very thin, and I am firmly of the opinion that its early removal saved the child a very severe attack of peritonitis, and perhaps its life, for Dr. Steele, who assisted me, claimed it was almost a facsimile of

one recently removed from the child of a physician. A considerable number of physicians who were in attendance advised against operation, but, when they fully agreed that the child was beyond all hope, an operation was made, and death soon followed. My little patient is now entirely out of danger.

The point I wish to make in its exhibition is that an attack of appendicitis, even though it be the first one, as in this case, where the characteristic pain returns soon (say twenty-four hours) after the bowels have been thoroughly cleaned out, and when the patient is at rest in bed, should not be further treated by internal medication, but should be operated at once.

Intestinal Obstruction.

The second specimen I wish to exhibit is perhaps of much greater interest to the profession than that of the much-abused appendix. It is with a sadder heart, however, because of the fatal ending, that I present it to you. Two weeks ago I was called to the bedside of the lady from whom this was removed, and found her suffering from severe pain, which, upon examination, proved to be due to a strangulated hernia. Reduction was not attempted, because of the very great severity of the pain. The patient was taken to the Chicago Hospital as soon and as carefully as possible. An effort at cleaning the lower bowel by enema was resorted to; an anæsthetic was given, and the patient was prepared as thoroughly as possible and the hernia cut down upon. Upon opening the sac it was found to contain a large amount of peritoneal fluid and about five inches of gangrenous intestine. Resection was necessary; the ring which strangulated the bowel was divided, a larger mass of intestines brought into the field of operation, a purse-string suture run around the intestinal wall, well clear of the diseased portion, the mesentery tied off, the diseased portion resected, and both free ends thoroughly cleansed. The Murphy button, after being examined a second time, was now separated, and each half introduced with some difficulty into the ends of the bowel. The button being a little tight for the bowel, the sutures were now tightened and end-to-end approximation made by forcibly locking the two halves of the button together. The bowel was now re-enforced in several places over the steel button, and dropped into the abdomen and the wound closed. For ten days thereafter the patient did not manifest a bad

symptom. On the tenth day I found the patient suffering severe pain, which I attributed to separation of the button. She became gradually worse, however, and on the eleventh day the abdomen being again opened, was found to contain a large amount of fæces and pus. Free drainage was now established, but the patient did not rally from the shock.

Post-mortem examination showed the button still *in situ*, and, as you see, surrounded by a very badly obstructed bowel, because of adhesions formed by the bowel walls. Evidently a leakage occurred around the button, which caused an obstruction and septic general peritonitis.

DISCUSSION.

Dr. L. L. McARTHUR: It has been my misfortune to have seen three fatal cases following the use of the Murphy button, two of which I was responsible for. While this case can not be added justly to the series of unfortunate results which accompany the use of this mechanical device, still, it goes to show that, while it is a very useful instrument, it is not yet perfect, and that we must hope for something better than it. The inventor of the button claims that, if properly used, the adhesions formed are strong enough at the end of twenty-four to forty-eight hours to resist the traction and pressure brought upon it by bowel movement, and he does not hesitate to give nourishment by the stomach after the lapse of eighteen to twenty-four hours.

I presented a specimen of this kind to the Chicago Medical Society, and feel justified in calling your attention again to the case. After the lapse of seven days, the patient having had normal bowel movements, after the first twenty-four hours having taken nourishment liberally and having had a normal temperature, the line of union gave way by the traction of the button hanging at one side of the bowel while being free at the rest. On account of the dragging upon the line of union, it pulled the adhesive lymph apart and permitted leakage of the bowel. This occurred on the seventh day after the operation. The anastomosis was made in the case above and below the seat of obstruction. The obstruction resulted from a gangrenous, incarcerated hernia, which after taxis had been reduced six months previously without operation. After the symptoms of rupture, at the line of anastomosis above and below the obstruction, made their appearance, the abdomen was opened within three hours,

and then an end-to-end anastomosis made, the entire loop, which was the seat of the first trouble, being removed. On the fifth day the line of union again gave way at the margin opposite the mesenteric attachment, and leakage for the second time occurred. Fortunately, a mass of folded gauze had been carried down to the site of the first leakage, in order to circumscribe the peritonitis which had naturally followed; and when the leakage occurred the second time the escape took place along the course of the drain. After the lapse of three days, however, the peritonitis became general, and the man died. I believe it important to place on record our unfortunate results with this mechanical device. On telling Dr. Murphy of it, he said it was the first case that he had heard of in which, after the lapse of seven days, a leakage had occurred. Dr. Lyons' case would rather indicate that for ten days leakage did not occur, and then suddenly took place.

Dr. J. T. BINKLEY: Having seen the operation by Dr. Lyons of resection of the bowel for strangulated hernia in which a Murphy button was used, I noticed at the time, as was apparent also to both the operators, that the button was an imperfect one, and should have been rejected. The only method left without the use of the button would have been to unite the bowel end to end by sutures. The button in this case was too large for the opening. There was considerable œdema, the bowel was very much thickened, its lumen small and would not stretch, and, in forcing the male portion of the button into the bowel, it was torn. The male section of the button was pushed home into the female section, and then a small opening was noticed in the rim of the button, which should have been hidden, and this point of the bowel was re-enforced by sutures taken from above and below the point of contact. The progress of the patient for ten days following the operation was a great surprise to me. I watched the case with a good deal of interest. The operation other than that was not faulty in technique. A proper operation on the mesentery was done, excepting the opening, which I do not think was well covered, otherwise the operation would have been all right.

Dr. JOHN A. LYONS: I exhibited the specimen to Dr. Murphy, knowing he would be thoroughly interested in it, and upon examination he claimed it was not the fault of the button but of the technique; that we did not tie and cut off the mesentery in such a manner as to enable the free ends of the mesentery to come together

accurately. That is to say, we should have cut the mesentery V-shaped, so that when approximation with the button was made the mesentery could have been sewed together, forming an exact straight line with the line of approximation (an illustration of which can be seen at pages 491, 492 of Wyeth's *Surgery*). This would insure good circulation, and thereby aid union. I extended to Dr. Murphy an invitation to be here to-night, so that a thorough discussion might be gone into, and the weak points in our work brought out; but I learn just now that he is unable to come. To make the doctor clear on this point, I will say he informed me he had never lost a patient from gangrene of the bowel where his button was used, and that in all fatal cases of this kind, where the specimen was on exhibition, he could prove by the specimen itself that the mesentery had not been connected correctly. At the point of bowel approximation Dr. Murphy claims there was good union, but to me it looks indeed very poor. The button we used was the only one at hand at the time.

Dr. WATKINS: How much of the intestines did you resect?

Dr. LYONS: About six inches.

Dr. NEWMAN: You are not sure as to the button having loosened itself?

Dr. LYONS: I am quite sure it was still at the point of approximation; but, as you see, union could not have been firm, for separation has taken place around the entire circumference.

Extra-uterine Pregnancy occurring twice in the Same Patient, with General Consideration of the Subject of Ectopic Gestation.

BY LESTER E. FRANKENTHAL, M. D.

(See page 297.)

DISCUSSION.

Dr. HENRY BANGA: Dr. Frankenthal has given us such an admirable *exposé* of the whole question of extra-uterine pregnancy that I hardly know what I can add. I will, however, say a few words as to the indications for operation. I agree with the doctor that whenever a diagnosis of extra-uterine pregnancy is made prior to rupture we should advise immediate operation for the reasons that he has enumerated. In cases of rupture, however, I have been

sometimes very unfortunate in advising the patient what to do. We, of course, all know the possibilities in such cases. If we try to explain these possibilities to the patients, they do not understand them, and they will invariably put the question whether there is any possibility of recovery without an operation. It has occurred to me several times that when I said an operation was absolutely necessary the patient wanted to wait, and afterward I had to take the odium upon myself when they got well without being operated. I have tried since then to find out how far we can wait, or how long we can wait for absorption of the hæmatoma or the hæmatocele, and when we should insist upon operating and getting rid of the accumulation of fluid, and I must confess that I have not as yet come to a clear understanding of these indications. About a year ago I had a case which presented undoubtedly all of the symptoms of extra-uterine pregnancy with the formation of an hæmatocele. An immense tumor could be felt above the brim of the pelvis. I had her taken to the hospital with a view to operating, but the family were not quite willing to have an operation performed. I was at that time in a position where I wanted to find out by myself how far we could trust to Nature to absorb such a tumor. After about six weeks I noticed that the tumor grew smaller, and that the colicky pain she had and symptoms of pressure upon the bladder and rectum had materially diminished. I finally sent her home, expecting everything would be absorbed in the course of a few more weeks or months. It was on July 1st that rupture took place, and it was in the latter part of August when she was sent home. After her return home I saw her every month, and the tumor kept on diminishing to about the size of two fists. If one had seen the patient for the first time at that stage, he would have thought she had a fibroma filling out the pelvis, so hard had the tumor become. I tried everything to aid resorption. During the winter months and early spring I saw her about once every eight weeks, and the tumor remained practically the same. In the beginning the patient objected to an operation because of my hesitancy, but she began to think that it would have been better if I had operated on her in the first place. I spoke to Dr. Frankenthal several times of the case, and I presume he thought of this case when he mentioned the unhappy outcome of such hæmatoceles, the tumors forming behind the uterus and pressing upon the nerves, blood-vessels, etc. I saw the patient to-day, having

not seen her for two months. The tumor is decidedly smaller in size, and she has much less trouble from it, so that after all I think it will become absorbed. The practical difficulty arises after rupture has occurred, when we have to deal with a hæmatoma or hæmatocele. Then it will require what we may call practical tact to find out when to interfere, or when to persuade the patient to submit to an operation. I think it is as yet impossible to lay down definite rules, as, for instance, this: If four or six weeks after rupture you still find a tumor the size of an orange, you must operate, or else expect it to become absorbed.

Dr. L. L. McARTHUR: I can look back with pleasure and profit to my association with the reader of the paper during the past eight or nine years in the surgical service of the Michael Reese Hospital, in this as in many other particulars. As Dr. Banga has said, he has covered the subject so thoroughly that but little remains to be added. To those of us who can look back twelve or fifteen years in the history of the treatment of what was then called hæmatocele of the pelvis, we certainly can feel that glow of pride in the perfection of our methods of diagnosis and treatment of this ailment, just as we can in a very parallel case with regard to the diagnosis and treatment of appendicitis. The time has not long passed when we regarded a diagnosis as complete when we had diagnosed fæcal abscess. When the trouble had gone so far that an abscess had formed large enough to make a diagnosis of abscess, and with an exploring needle to determine that it contained fæcal matter with pus. In a directly similar manner we were satisfied by inserting an exploring needle through the vaginal wall, and finding blood to make a diagnosis of hæmatoma, and we were content with that diagnosis. It certainly must be a pleasure, born of the positive knowledge that is gained thereby, when we find blood with a hypodermic needle inserted in the *cul-de-sac* of Douglas, to know that we have practically always to deal with an extra-uterine pregnancy, for the other cases of hæmorrhage in this location are so few as to be practically ignored, and to be impossible of diagnosis without exploration. I think that it was through my desire to be conservative that the doctor was induced to leave the other apparently normal ovary and tube in the first case reported, when he felt inclined to remove the same to protect the patient against a similar occurrence later. Unfortunately for that patient, this very thing did take place, and the conservatism which I imagined then to be

good proved to be bad. Still, I do think that we are not yet advanced enough in the treatment of extra-uterine pregnancy to take the position (and here the parallel appears again with the question of appendicitis)—that is, as soon as a diagnosis is made an operation should be instituted, or as soon as it is convenient to prepare the patient, for I am confident that many cases will in the future, as in the past, recover without operation and have no further trouble. Only future experience can enable us to decide when and when not to operate. Given a case in which a hæmorrhage is occurring, or has occurred very recently, within a few hours, perhaps a day, and the patient shows evidences of rallying from the shock which naturally accompanies the deluging of the peritonæum with blood, I believe it is wise to wait, where the symptoms do not demand immediate interference, until the blood shall have time to coagulate in part and the patient to rally from the profound shock which even a small amount of blood in this situation may produce, the amount of shock not being dependent wholly upon the quantity of blood, but in large part due to the shock incident to foreign matter in the peritoneal cavity. Having given the patient time to rally, then surgical interference is advisable.

It is made clear to us by Dr. Frankenthal's excellent *résumé* of the literature of the subject how easy it is for an ectopic gestation to occur because of a simple mechanical obstruction. Any narrowing from whatever cause in any portion of the tube may diminish the caliber of that tube to such an extent as to permit the ovum, which is always of a definite minimum size, from passing along it. We know how easy it is for a stenosis to occur in this part of the genital tract in a similar manner to the contractions which may occur in the male. I have been struck with the frequent and acute pain with which many of these patients complain, and which involves the sacral plexus of nerves, especially in cases treated conservatively. Its extension as purely mechanical is, I think, an aid to the diagnosis. Many patients will complain of intense pain following along the course of the sacral-plexus distribution. Another phenomenon which struck me, and which I think may be one of the early symptoms of the occurrence of hæmorrhage, is recto-vesical tenesmus. I have seen four cases in which the first symptoms were noticed when the patients were at stool, or on going to stool the rupture occurred. I think the symptom of rectal tenesmus was only secondary to the rupture, and the pa-

tient fainted because of the straining increasing the amount of hæmorrhage, but was driven to stool not because of something in the bowel, but because of the hæmorrhage, inducing rectal tenesmus.

I regard, too, as a valuable adjunct in cases of hæmorrhage at this as at other points the transfusion of a fluid of the same specific gravity of the blood, preferably normal salt solution, and I regard Dr. Frankenthal's suggestion as a good one to improve its quality by the addition of blood. I claim to have saved at least ten lives through temporarily supplying the heart with a medium to pump in order to enable the patients to recover from the loss of blood. I believe that it should be an adjunct in the treatment of every case of extra-uterine hæmorrhage, not that it should be used in every case, but it should be at hand. It is a very easy matter to prepare human blood for transfusion by defibrinating it by means of whipping it with any suitable instrument; I have used a bunch of sterilized broom straws, defibrinating and filtering it through sterilized gauze. It can be done nicely in the case of normal salt solution without deteriorating in anywise the characteristics of the blood-corpuscles, and I think adds decidedly to its value as a transfusion fluid.

Dr. T. J. WATKINS: There is little to say except to commend the paper of Dr. Frankenthal, as his conclusions seem logical, and he has also supported many of the opinions expressed by recognized authority. The paper shows thorough study of the literature and close observation of cases. Dr. Frankenthal is fortunate in having had so large an experience, and deserves well-merited credit for the results obtained.

There are, however, some phases of the subject which are, as he has said, in an unsettled state. In fact, the ætiology of extra-uterine pregnancy is mostly theory. I can not agree with Dr. Frankenthal that the probable normal place of impregnation of the ovum is in the tube. Bland Sutton says that the usual teaching that in the human female the tubes are the meeting place of the ova and spermatozoa is pure conjecture. He also says that the statement frequently made that the spermatozoa normally pass up the tube is unsupported by facts. Tait also believes that the ovum is normally impregnated in the uterus, that it is exceptional for the spermatozoa to pass into the tubes, and that when the ovum becomes impregnated in the tube it becomes imbedded there—that is,

tubal pregnancy results. If the normal place of impregnation of the ovum is in the tube, it would seem that Nature erred in making the distal portion of the tube so large and the proximal portion so small.

It is not plausible to believe that spermatozoa normally pass into the tube because—

1. The endometrium by a valvelike formation normally obstructs entrance into the tubes.
2. Motion of the cilia of the tubes is toward the uterus.
3. The uterine portion of the tube is not much larger than a fully developed ovum, and too small to permit a fecundated ovum, after slight development, to pass.
4. Spermatozoa have been found only in very few instances in excised tubes.

It has not been proved that the normal place of impregnation of the ovum is ever in the tube, but the cases * where pregnancy has occurred after excision of the tubes, at or near the horns of the uterus, is probably positive proof that the ovum is sometimes, at least, impregnated in the uterus.

It would seem, therefore, that conditions that would predispose to ectopic gestation are—

1. Injury or absence of the valvelike formation of the endometrium over the uterine ostium of the tube.
2. Injury or absence of the cilia in the tube.
3. Enlargement of the proximal end of the tube, such as exists soon after miscarriage, labors at term, and subinvolution. It is a fact that tubal pregnancy frequently occurs soon after miscarriage or labor.

The statement frequently made that desquamative salpingitis is a fruitful cause of tubal pregnancy is not substantiated by examination of pregnant tubes. I have neither seen nor read of pregnant tubes that showed much if any chronic inflammatory thickening. Bland Sutton says that the pregnant tubes which he has examined showed no old inflammatory thickening in the walls, and that he has found the entire epithelium intact. Dr. Rumpf, in a recent paper read before this Society, stated that, "as an ovum will not imbed itself in a uterus whose mucosa is diseased, it will not imbed itself in an entirely diseased tube."

* Transactions of the American Gynæcological Society, 1896.

In the four specimens which I exhibit you will notice that a macroscopical examination shows no evidence of a previous inflammatory disease of the tubes.

Where extensive hæmorrhage has occurred, I do not believe that it is advisable to remove the liquid blood. In a patient whom I operated about one year ago I not only left a large amount of blood in the abdomen, but filled the abdomen full of normal saline solution, which I believe was an important factor in saving her life, as her temperature was about 96°, she was pulseless at the wrist, delirious, tossing about in bed, had a marked sighing respiration, and the surface of the body was cold.

The ease and safety of vaginal incision and drainage of the cases, that have resulted in large hæmatoceles and hæmatomas, and the satisfactory results that follow this operation, would indicate that the vaginal is much preferable to the abdominal route for this class of cases.

I have operated nine of these cases this way with gratifying results. I feel certain that three or four of them would have died had the abdominal route been used. Dr. Kelly recently reported to the American Gynecological Society nineteen cases, I believe, of this kind operated by incision and drainage with excellent results, and was very positive in his support of the operation. In making the vaginal incision and drainage great care should be exercised not to remove placental tissue or tear tissues that are liable to bleed. I would not use direct transfusion, because I believe it is proved that saline infusion is safer and about as efficient.

The use of defibrinated blood, referred to by Dr. McArthur, would be preferable to saline solution. The method spoken of by Dr. Frankenthal of clamping the broad ligament on both sides of pregnancy and excising the mass, without taking time to use ligatures and sutures, seems to be an excellent one in certain cases, and, as far as I know, the suggestion is original with him. It would be of great advantage in cases of interstitial pregnancy, which necessitated hysterectomy, to place a clamp with a long blade down the broad ligament on either side of the uterus, to amputate the uterus, to leave the clamps, and to place gauze to protect the intestines from coming down against any necrotic tissue that might follow the application of the clamps.

I believe the shock produced is proportionate to the amount of blood lost in these cases. Some patients have more blood to lose

than others, and consequently have less shock. I have two reasons for this belief: First, we frequently find patients with hæmatoceles where there is a large accumulation of blood in the abdomen, and when there is no history of shock. The blood probably accumulated slowly. Second, in the cases upon which we operate the shock usually seems to be proportionate to the amount of blood lost—that is, the relative amount of blood lost and the rapidity of the hæmorrhage. Where the amount of blood lost is small and gradual, there is little or no shock.

The points which I have taken issue with Dr. Frankenthal are in nowise a criticism on his paper, as they are as yet entirely *sub judice*.

Dr. WILLIAM H. RUMPF: I have had occasion in the last few months to look quite thoroughly through the literature of extra-uterine pregnancy, and I have nowhere read a more concise and interesting *résumé* of the subject than we have had the pleasure of hearing this evening. I congratulate the doctor on his excellent paper.

As far as the pathology goes, I do not think there is a single point that I would differ with the doctor. There is only one point I would like to object to in Dr. Watkins' discussion, and that is the place of impregnation of the ovum. Numerous experiments on the lower animals have proved that within five or six hours after copulation the voluminous folds of the distal end of the tube were completely filled with spermatozoa. Henle has called this part of the tube the receptaculum seminis. The fact that patients have become pregnant after a tube has been removed close to the uterus can easily be explained on the ground that the pregnancy might have occurred from the other tube, or the ovum might have been impregnated before the operation and have become lodged in the uterus.

Dr. C. S. BACON: I had in mind to make the same remark that Dr. Rumpf has made. In looking over the literature of the subject some two months ago I had the same experience, and I must say that as a *résumé* of the ætiology and diagnosis of extra-uterine pregnancy, as well as a practical consideration of the subject, there is nowhere to be found a more interesting paper than the one which we have heard read. I wish to ask one or two questions, and make allusion to a point or two on which perhaps I might differ with the essayist, although in the matter of general conclusions it seems

to me what the doctor has said represents the present condition of our knowledge on the subject. In the first place, I would ask what authority there is for the statement that a second decidua can be thrown off from the uterus. Further, additional facts might be given in regard to the growth of the uterus during extra-uterine pregnancy. The rapidity of growth of the uterus during this condition is dependent upon the proximity of the tumor to the uterus. It is a curious fact, but I think pretty well established, that the uterus grows more rapidly in size when the extra-uterine sac is located near the uterus than when it is far away. As a rule, we may expect a uterus as large at two months, when the tumor is located near the uterus, as at three months, when it is located in the infundibular end of the tube.

The chief point I should object to in the paper is the condemnation of the curette in diagnosis. Dr. Frankenthal condemns the curette for two reasons: One is that the decidua obtained from the uterus by the curette may be the same in intra-uterine as in extra-uterine pregnancy, and hence of no diagnostic value. This objection does not hold, since the curette is only to be used to make a diagnosis between extra-uterine pregnancy and a tubal sac, or a tumor outside of the uterus. It is not of use in the differential diagnosis between extra-uterine and intra-uterine pregnancy. The second objection to the curette is that it is apt to excite tubal contractions, and lead to rupture of the tube. I do not know that it has been proved that the use of the uterine curette is any more likely to excite tubal contractions or to lead to rupture of the tube than bimanual manipulation. Quite a number of instances are on record where rupture has been produced by bimanual examination. Dr. Frankenthal himself states that one of his cases of ruptured tube was due to bimanual examination. I have the suspicion that it is a more common cause of rupture of the sac than curettement of the uterus. The importance of the diagnosis is so great that this danger should be assumed. The condemnation of the use of the curette for the purpose of making a differential diagnosis between extra-uterine pregnancy and pyosalpinx or an ovarian cyst, is justifiable.

In general, it may be stated that large numbers of figures given to determine the prognosis are of little value unless they are properly classified. The prognosis to be of value must take into consideration the effect of different methods of treatment.

The vaginal operation is spoken of again to-night, as it was at a previous meeting of this Society, as consisting simply in an incision behind the uterus with drainage. I wish to call attention again to the fact that before rupture of the tube the ideal procedure is an incision between the bladder and the uterus, making use of the technique for vaginal *coeliotomy*, which has been so much perfected by the vaginal operation in the last two or three years. This route enables us to get much better control of the vessels, and consequently to control hæmorrhage.

The advocacy of intravenous transfusion has been so emphatic that I would like to raise the question whether the advantage of transfusion is very much greater than that of the hypodermic injection of saline solution. The hypodermic injection of saline solution is so much simpler, so much more easily done, and so much less dangerous that it must take the place of transfusion in nearly all cases. The hypodermic injection of saline solution has been used almost exclusively in the hospitals where I have had the opportunity of studying and working. On account of its greater simplicity, it is often used much earlier than the other method would be. To hear that transfusion is recommended in preference to hypodermic injection was to me a matter of surprise.

As a side issue, the question of catgut sterilization was brought up. I doubt whether any method of catgut sterilization is equal to the method of Krönig—that is, sterilization in cumol.

Dr. FRANK A. STAHL: I am gratified to have heard such a splendid paper on extra-uterine pregnancy. It might serve as an epitome on the subject. There was one question which interested me very much from a practical standpoint, inasmuch as it leads up to my own personal experience with cases of extra-uterine pregnancy. I have had a couple of cases come under my observation, similar to those mentioned by Dr. Banga, in which immediate operation was urged, but declined. Not knowing, when I was called in these cases, that another physician had been in attendance, I told them under the circumstances that it would be just as well to wait until morning before operating. When morning came the two patients recovered from the immediate symptoms later, both ending in cure without operation; but from the subsequent history of one of them I am inclined to believe that it would have been better to have operated.

In regard to the case spoken of by Dr. Banga, I would ask him

whether he does not think the result would have been better if an immediate operation had been done. If in one case operation was refused because of metrorrhagia, and the patient ultimately recovered, would it not have been better to have operated in the first place without a long-drawn recovery.

With reference to what has been said regarding the use of the curette, I do not think Dr. Bacon brought out any important point gained by its use in this condition. We may do great harm by the curette in that we may produce abrasions. I am not sure that Dr. Bacon will agree with me in regard to this point, but, in order to bring away anything with the curette, we must produce more or less irritation or abrasion by it. We thereby induce contractions of the uterus, and contractions of the broad ligament take place out of sympathy with the uterus; these contractions may be productive of primary and secondary rupture of a pregnant tube.

Dr. HENRY BANGA: In answer to Dr. Stahl, I certainly think it would have been better if the woman had been operated on at first, when I proposed it to her, but she did not want to have it done. I am satisfied she would have been saved the trouble she has had for eight or ten months. While she does not complain very much now, we can still feel a mass behind the uterus. It is just such cases we have to watch in all their details, in order to gather material for elucidating the question when to operate for hæmatocele or hæmatoma.

Dr. L. L. McARTHUR: I would say in answer to Dr. Bacon that transfusion was resorted to in those cases where the patients were nearly pulseless at the wrist, or so much so that it was almost imperceptible. Under these circumstances there was practically no circulation. With no circulation nothing could be hoped for from intervascular transfusion. The transfusion process as now utilized is that of injecting fluid into the veins at the elbow, the amount being guided by the pulse at the wrist. As soon as the fluid is transfused into the vessels there is an immediate increase in the pulse volume. The pulse becomes perceptible, and the heart, crying for something to pump, settles down to work again. This can not be expected from the hypodermic injection of enormous quantities of fluid until the circulation has become re-established and absorption takes place.

Dr. RUFUS G. COLLINS (present by invitation): Dr. Frankenthal said there was a similarity between these cases of ectopic ges-

tation. Taking the history of the cases in connection with the physical signs, etc., there is a similarity, but with reference to the conditions presented by the patients, they are quite dissimilar. Of this point it is my intention to say a few words, as it bears upon two cases I have in mind, both alike from the fact that they each had one child about a year old, and from the fact that they had not menstruated since that time; but unlike one another in that one of them, a Swedish woman, was weak and anæmic, and the other, a German woman, was strong, fleshy, and plethoric. The first patient, when I was called to see her, complained of excruciating pain, not, as Dr. McArthur stated, confined to the sacral plexus of the nerves, but shooting through the whole abdomen and into the chest, the case presenting typical symptoms of hæmatocele. There was present quite a large tumor, with tenderness over the abdomen. The pressure of the tumor flattened the cervix against the symphysis. A hypodermic injection of morphine to relieve the pain, the pelvis elevated, and an ice-bag applied, all of her distressed feelings soon subsided. That of itself might establish the fact that the shock is the result of the sudden loss of blood, together with the pain. We see cases of abortion suffering from considerable hæmorrhage; they get very faint and suffer from syncope; they feel greatly distressed, and, although they may lose still more blood in the next few hours, they nevertheless feel better rather than worse, which I think is due to the fact that the system becomes accommodated to the loss of blood; so I think that the sudden withdrawal of a large quantity of blood is, to say the least, a large factor in the production of shock. The woman felt much better for a few days after this, and no new symptoms developed. In the course of ten days there was a repetition of the same thing—a return of the pain, faintness, etc. She was in extreme agony. She was sent to the hospital, operated upon (by Dr. Frankenthal), and recovered.

In the other case in which hæmorrhage occurred the complexus of symptom was entirely different. I was called to see this woman on account of a slight flow. She had absolutely no pain, and her husband wanted me to see if it would be advisable for her to take a contemplated outing on Sunday. The amount of blood she was losing was small—not equal to that lost during normal menstruation—and there seemed to be some inconsistency somewhere, that an intelligent woman of strong physique should think a slight flow incompatible with a street-car ride. There must have been a weak-

ness accompanying the hæmorrhage of which she did not complain. I advised her to remain in bed, and after two or three days her husband came to see me again, and stated that his wife "still had that hæmorrhage." In this instance I was not acquainted with the previous condition of the pelvic organs, and there was not sufficient tumor to enable one to make a positive diagnosis. The subsequent history was that the hæmorrhage gradually increased, and a tumefaction developed, which was palpable. She went to the hospital, was examined by Dr. Frankenthal, but was not operated on immediately, because she never became very blanched, her lips were not pale, and the hæmorrhage which she sustained did not produce any severe symptoms. She was kept under observation for some time, with the hope that the tumor might be absorbed. The hæmorrhage gradually increased, and, *para passu*, the tumor enlarged, so that at the expiration of ten days she was operated upon with favorable result.

Dr. JOHN A. LYONS: This is indeed a most excellent thesis, and I am certain we have all been amply repaid for coming here to hear it.

I am of the opinion that when we can diagnose extra-uterine pregnancy with the same certainty that we can appendicitis, I think we will be in a position to operate for ectopic pregnancy earlier if the patient is in condition to warrant it.

Dr. C. S. BACON: I wish to say in reference to Dr. Stahl's remark as to the use of the curette that I alluded to the well-known fact that the presence of uterine decidua was a very important diagnostic point in the determination of extra-uterine pregnancy; that if the decidua is found in the discharges from the uterus, it has a very important bearing on the diagnosis, and if the decidua is not discharged from the uterus, it is a good idea to get it by means of the curette, and it is a procedure which is certainly a valuable addition to our diagnostic resources. I wish to add also that if there is intra-uterine pregnancy, of course, we are liable to find the presence of chorionic villi, and their absence in the decidual membrane is so far a point toward the diagnosis of extra-uterine pregnancy, while the presence of the villi is so far a negative point against the presence of an ectopic sac.

Dr. HENRY P. NEWMAN: The lateness of the hour and the admirable résumé of the subject by the essayist, as well as the points brought out by the gentlemen who have discussed the paper, lead

me to add little or nothing. There are two clinical points to which I desire to direct attention. Possibly a wrong impression might be carried away if some reference was not made to them. In the first place, I would allude to the point made by Dr. Watkins of attacking these cases through the vagina. He was not sufficiently explicit as to what class of cases should be operated upon by the vaginal route and what cases should not.

Dr. WATKINS: I spoke only of large hæmatomas and hæmatoceles as being suitable for the vaginal operation.

Dr. NEWMAN (resuming): That being made clear, these cases can be treated *per vaginam*. Others, if seen sufficiently early, can frequently be operated upon by this route; but where we have a large maturing ectopic case it is a hazardous procedure to attack them through the vagina, as it is with great difficulty that the hæmorrhage from the placental site can be controlled.

In regard to the use of chloroform, Dr. Frankenthal spoke of it as being his favorite anæsthetic in these cases. I would take exception to its use, particularly in those cases of shock due to hæmorrhage. In such cases chloroform would be the last thing I would attempt to use. With an anæmic condition of the brain, a patient's life is greatly endangered by the use of chloroform.

Dr. FRANKENTHAL (closing): I will try to answer the various points that have been brought out in the discussion of my paper *seriatim*. Dr. Watkins objected to the theory that the tube is the normal site of impregnation. As Dr. Rumpf has stated, normally spermatozoa are found soon after copulation in the tubes in rabbits; Minot has proved the site of impregnation in mammals to be in the tubes. I think there are more theories and microscopical findings in favor of my statement than there are proofs that Dr. Watkins can bring forth in favor of his. I have already in my paper stated that Mr. Lawson Tait and Mr. Sutton objected to this theory.

I must again insist that I consider the operation *per vaginam* after the formation of the placenta very dangerous, for, after the adventitious uterus has emptied itself of the blood clots, etc., its muscular fibers may contract, causing separation of the placenta and most terrible secondary hæmorrhage. This hæmorrhage need not occur until some time after.

At the Gynæcological Congress in Halle, in 1888, Schwartz showed clearly that the shock in these cases of ectopic pregnancy was caused more by the peripheral nerve irritation from the foreign

body in the peritonæum than by the quantity of blood lost. And how can it be otherwise when you see patients faint immediately after rupture or abortion has occurred long before loss of blood is sufficient to cause it. No one denies that hæmorrhage will not increase the shock. So much in answer to Dr. Watkins' exception to my summary.

When a patient is chloroformed in shock it will not take more than a few full breaths of chloroform to put her to sleep. From then on we use ether. Besides, I do not fear chloroform as many do. This in answer to Dr. Newman.

Now as to Dr. Bacon: I consider the use of the curette contraindicated not only because it may provoke primary rupture, but also because it may cause a secondary rupture—that is, the rupture of the hæmatocele. Besides, as stated in the paper, the presence of the decidua cells means little, their absence or presence being no evidence to be seriously considered. I mean no one would be induced to operate on the mere strength of any information obtained by curetting.

The uterus does enlarge as in normal pregnancy, but it does not enlarge as much in the antero-posterior diameter, the characteristic belly of the posterior wall of the uterus of the early weeks being absent (Ahlfeld's sign). Hegar's sign I have likewise never noted. Finally, direct transfusion is simple, and can be done quickly. Its effect is immediate, while subcutaneous transfusion in a pulseless patient will neither act so promptly nor give the heart volume to contract on. When I speak of direct transfusion in desperate cases, I mean transfusion from man to patient or with defibrinated blood, it matters little.

Dr. Bacon asks for my authority for the passing of the second decidua. F. v. Winckel, *Zweiter Congress der deut. Ges. f. Gyn.*, and E. Fraenkel, *Arch. f. Gyn.*, vol. xiv. Likewise might an intra-uterine and extra-uterine pregnancy occur at the same time in a bicornate uterus, accounting for the passing of a second decidua.

And, finally, a few words to my old friend Dr. McArthur. The high mortality of the conservative treatment—more than sixty-seven per cent. mortality in two hundred and seventy-eight cases, with but twenty per cent. mortality in six hundred and thirty-six after operation—speaks for itself. The more pressure in the pelvis, the more confined to the pelvis the hæmatocele is, the more pronounced on account of the pressure will be the sacral pains. If, on the other

hand, the blood be distributed in the abdomen, the pain will likewise be more diffuse.

As far as I can remember, I have answered all the questions brought forth in the discussion.

Lastly, I wish to thank the President, the members, and visitors present for their kind reception not only of myself, but likewise of my paper, and the animated discussion provoked. I hope in the future to be enabled to return the compliment.

Official Transactions.

T. J. WATKINS, M. D.,
Editor of Society.

TRANSACTIONS OF THE AMERICAN GYNÆCOLOGICAL SOCIETY.

THIRD DAY.

May 28, 1896.

(Continued from page 236.)

SOME ASPECTS OF URETERITIS IN WOMEN.

BY EDWARD P. REYNOLDS, M. D., BOSTON.

(Author's Abstract.)

After a brief consideration of the ætiology of the disease in general, the writer states that in his experience the majority of cases of ureteritis have been dependent upon an altered condition of the urine, associated with renal insufficiency, and that this paper is confined to a consideration of this class of cases of ureteritis only. The chronic and acute stages of the disease, although essentially the same affection, are treated in separate sections of the paper, on account of the marked difference in the clinical pictures which they present.

Chronic Urcteritis.

The characteristic symptomatology of this affection consists in an increased frequency of urination, which is increased by the erect

posture, but not wholly relieved by recumbency, the necessity of rising during the night for the purpose of micturition being always present in the writer's experience. With this frequency of micturition is associated a bearing-down pain, which is especially aggravated by standing and relieved by rest in bed. These two symptoms may be due to other pelvic lesions, but should always excite a suspicion of ureteritis. The physical signs of the disease are limited to a complaint of tenderness, and usually of a desire to urinate, on compression over the affected end of the ureter or ureters. In addition to this, examination of the bladder usually shows alteration in the appearance of the ureteral orifice, and often in the neighboring mucous membrane of the bladder. In eight consecutive cases of unilateral ureteritis, catheterization of the ureters has shown a decrease of urea from the affected side. The writer thinks it probable that the urine in renal insufficiency may contain irritant substances which are the result of imperfect metabolism, and that in unilateral cases the one-sided ureteritis not improbably bears a resultant relation to the relatively increased renal insufficiency upon that side.

Treatment is divided into palliative and curative methods. The palliative methods are applicable only to cases in which painful micturition is dependent upon ulcerations or localized inflammations of the vesical mucous membrane in the neighborhood of the ureteral orifice. The writer recommends a carefully localized application of the solid nitrate of silver to such inflammatory surfaces. The curative treatment is hygienic and medicinal. It consists of the ingestion of a large amount of water, accompanied by an alkaline diuretic, a bland, nutritious, and largely albuminous diet, restricting the use of most of the more highly flavored vegetables, and absolutely interdicting all strawberries and asparagus. To these measures should be added massage or light, gentle exercise. The only drugs which the writer has found of value are the so-called alteratives, preferably small doses of mercury, iodide of potassium, or mercury and iodide mixed, which act upon the ureteritis, presumably by improving the general metabolism of the body.

Acute Ureteritis.

This is a frequent, though not dangerous affection, which is probably often mistaken for severe intestinal colic, for renal stone,

catarrhal appendicitis, or catarrhal salpingitis. It appears as a sudden attack of abdominal pain, which is usually marked upon one side and slight upon the other. It is distinguished from the other affections mentioned by the fact that its tenderness moves steadily downward through the attack, beginning at the pelvis of the kidney and ending in the vesical portion of the ureter. The abdominal tenderness is often easily overlooked on account of its close localization to what the writer calls the three cardinal points in acute ureteritis, the first of which, characteristic of the beginning of the attack, is situated over the kidney and its pelvis; the second, characteristic of the middle portion of the attack, is identical with McBurney's point, or its fellow upon the other side—*i. e.*, situated halfway between the umbilicus and the antero-superior spine of the ilium; the third is situated about an inch above the middle of Poupart's ligament. Until the time when this last-mentioned tenderness appears vaginal examination is negative, but at this time tenderness, and usually swelling of the vesical end of the ureter, can be detected by the finger. The urine is not always characteristic, but occasionally shows crystals of uric acid and calcic oxalate in an otherwise limpid urine.

The affection tends to a recovery; without treatment, it probably ends in the chronic form of the disease, but with treatment similar to that of the chronic affection, is usually completely thrown off.

The paper closes with a report of two typical cases—one of chronic, the other of acute ureteritis—which are quoted as illustrations of the ease with which mistakes in diagnosis can be made.

IMPLANTATION OF THE URETER INTO THE BLADDER, PER ABDOMINAL SECTION, FOR THE CURE OF URETERO-VAGINAL FISTULA.

By H. J. BOLDT, M. D.

(Author's Abstract.)

Among the causes leading to the production of uretero-vaginal fistulæ, the most frequent at the present time is probably the vaginal extirpation of the uterus. Among other factors by which such fistulæ have been produced may be mentioned the perforation of a pelvic abscess, as cited by Thomas Addis Emmet in his *Principles*

and Practice of Gynecology, and in one instance, according to Weil, from the wearing of a Mayer pessary, which had been introduced by a midwife. It is also possible that acute torsion at the distal end of the ureter may produce them. "When the uterus is delivered anteriorly through the opening of the plicæ vesico-uterinæ and the broad ligaments are tied off from above, we get very near the ureter, at the point where it traverses the broad ligament, with one of the ligatures. If this ligature embraces too much tissue it will draw the ureter downward, *quasi* including it, but sufficiently far away from the uterus that it will not be directly cut when the organ is loosened from its attachments."

It is conceivable that as a consequence of the production of such sharp angle in the lower course of the ureter a necrosis in its wall can take place, with a perforation as the necessary result.

It is my belief that injuries of the ureters are of more frequent occurrence from the performance of vaginal hysterectomy than is known, many cases not being reported. Neither is it surprising that the ureter is occasionally injured during this operation. It is indeed liable to occur relatively oftener in the hands of experienced operators than in those of less experience, because the former are apt to undertake more difficult cases—especially when operating for cancer, if the broad ligaments are thickened and the operator works far away from the cervix while endeavoring to remove all particles of malignant infiltration.

If a ureter is injured during an operation it is not necessary that the damage done is manifested by urine dribbling during the first few days subsequent to the accident, because of the ligature or clamping compressing it; hence necrosis must first follow the traumatism.

Without the existence of a fistula the diagnosis becomes quite difficult if only one ureter has been occluded, the smaller quantity of urine evacuated from the bladder being no criterion. I have seen complete anuria for twelve hours in one instance, and partial anuria for from twenty-four to forty-eight hours on several occasions, following serious operations, the ischuria undoubtedly being due to the effects of the anæsthetic; perhaps also the loss of blood had some influence on its production. This symptom, however, taken in conjunction with colicky pains in one of the renal regions and sensitiveness to pressure there, associated perhaps

with vomiting, should lead us to make a cystoscopic examination, by which it could be ascertained whether or not both ureters are patent.

If a fistula is present the diagnosis becomes much easier, because, in addition to the urine passed from the vagina, about an equal quantity is voided voluntarily *per urethram*. A very valuable aid to diagnosis is found in the milk test. Milk injected into the bladder will not make its appearance in the fistula, even if the distal end of the ureter be still pervious, owing to the adaptation of the anterior and posterior wall of the ureter, the same as under normal conditions; this prevents the urine from regurgitating. Cystoscopic examination will also positively clear up such case; if the ureteral catheters be introduced, even if the distal end be pervious, no urine will come through the catheter on the affected side, while on the opposite side it will issue drop by drop. Again, by placing the patient in the dorsal position and exposing the vaginal vault with proper specula, one can with a little patience find the fistulous opening, though it be only the size of a pinhead or smaller; then with a proper probe, or, better, a ureteral catheter, it is usually possible to enter the ureter, and to see the urine coming out of this drop by drop makes the diagnosis a certainty. It should not be forgotten, however, that it is possible to have a false passage existing, so that one may think that the sound or catheter is in the ureter when such is not the case.

All uretero-vaginal fistulæ should be operated upon as soon as possible after the diagnosis has been established, on account of the great liability of the respective kidney to become infected. A careful comparative examination of the urine in all instances of uretero-vaginal fistulæ is very important. Whenever the urine from the kidney, with such injury to its ureter, is greatly increased in quantity with a diminished *quantum* of solids, there is probably serious structural change present in the renal organ, corroborating Iversen's observation; but such symptoms should by no means induce us to always remove such kidney, as was advocated by this surgeon, because it may be possible to get the respective kidney in an approximately healthy state by means of local and general treatment, and later to keep it so if the fistula has been obliterated.

The prevention of such accidents should be our main object; but even if the ureter has been occluded in a ligature or clamp, it may still be possible to prevent a fistula if the ureter has not been

cut, and we are sufficiently alert for the showing of the symptoms indicating the accident.

If complete anuria is present, we have reason to suspect that both ureters have been tied, especially when pain and sensitiveness to touch are present in the renal regions, with nausea and vomiting. Under such circumstances resort to the cystoscope should be had without delay. If, under the guidance of the eye, the catheters are introduced into the ureteral orifices, and it is found that the urine-conveying tubes are occluded, the ligatures or clamps should at once be released, when patency may be re-established. If bleeding takes place from any of the vessels liberated, it is not apt to be difficult to secure it directly with a Péan. The treatment of occlusion of one ureter is similar; the ligature or clamps must be taken off from the side from which no urine escapes through the catheter introduced through the ureteral orifice by way of the bladder.

A spontaneous cure can only come about if the ureter has been injured in its long axis.

I beg to call your attention to the cure of the fistulæ by implantation of the ureter directly into the bladder per abdominal section. If during an abdominal hysterectomy it is necessary to resect the lower segment of the ureter for a short distance, or if accidentally injured near the bladder during such operation, there should be no hesitation as to what is to be done: a ligature is to be put on the distal end of the ureter, and the proximal end should be implanted into the bladder at once.

When, however, such condition exists as we treat of, there may be other operative methods adopted to give relief, as will be briefly referred to later.

The history of the case which led me to adopt uretero-cystostomy is as follows:

Mrs. L. M., aged thirty-two years, had had a vaginal hysterectomy performed by me on June 6, 1895, for suppurative salpingitis, chronic pelveo-peritonitis, and chronic metritis. The operation was very difficult, owing to the immobility of the uterus and intestinal adhesions to the pelvic organs. The right ovary could not be enucleated for the above reasons.

A few days subsequent to the operation the patient lost urine involuntarily *per vaginam*, and, inasmuch as the bladder was intact at the close of the operation, as ascertained by the milk test, I suspected a uretero-vaginal fistula, which supposition proved correct

when a careful examination was made at the time of recovery from operation. Without delay local treatment was then begun to relieve the inflammatory infiltration surrounding the fistula at the roof of the vagina and pelvic floor, so that a plastic operation could be performed; but the result was negative, perhaps owing to the presence of the ovary and portion of annexa on the right side. The patient complained so bitterly of the inconvenience caused by the existence of the fistula, which was in connection with the right ureter, and also of the persistence of considerable pain in the right ovarian region, that I decided to make the attempt to implant the ureter *per abdomen*.

On October 10th, after thorough preparation of the unusually corpulent patient, a No. 4 gum-elastic catheter was passed into the ureter from the vaginal opening to act as a guide for the abdominal work.

The abdomen was then opened and the patient placed in pelvic elevation, when the ovary, which had undergone cystic degeneration to about the size of a hen's egg, and was tightly adherent to the pelvic walls, was enucleated. It hugged the ureter so intimately that, had the catheter not been placed in this for the purpose of guidance, I doubt its removal without additional injury to the ureter.

In the lower segment the ureter was not mobile, owing to the existence of a periureteritis, yet, thanks to the ureteral catheter, it was possible to resect it without injury; this was done for a distance of about seven centimetres, leaving the peritoneal covering, which was already attached to it by the inflammatory process, remain on it; besides, this served a good purpose by maintaining vitality. At the vaginal junction the ureter was severed, but the catheter was allowed to remain in it. Now, the bladder was filled about two thirds full of sterile water, so as to permit the selection of a proper place for implantation, which I desired to make as near as possible to the normal position; at this point the bladder was opened by an incision of about three quarters of a centimetre, the water having been emptied again *per catheter* as soon as the knife touched the mucosa. After the bladder had been opened a long pair of uterine dressing forceps were passed through the artificial opening in the bladder *per urethram*, and the ureteral catheter drawn through the viscus and out of the urethral opening sufficiently so that it protruded about ten centimetres; next, the ureter was invagi-

nated through the opening in the bladder to the extent of about one centimetre. Now, three very fine silk sutures were placed at about equal distance, which passed through the entire thickness of the bladder, excepting the mucosa, and quite superficially through the ureter. The abdomen was now closed in the usual way without drainage. A permanent catheter was finally put into the bladder alongside of the ureteral catheter, so as to keep the bladder empty, thereby not exerting any pressure on the newly made opening, so as to permit the ureter and bladder to heal rapidly; also to permit of the quantitative and qualitative examination of urine separately from each kidney during the first forty-eight hours. The ureteral catheter had also an additional object—namely, to give resistance to traction on the newly implanted ureter in the event of intestinal peristalsis. I have found the partial distention of the bladder advantageous to select the desirable location for the implantation and to facilitate the making of the incision. Recovery was uneventful, if a couple of stitch-hole abscesses be excluded.

The ureteral catheter especially is of the utmost importance; so much so that I believe it possible to properly free the ureter in every instance, even if it is surrounded by a periureteritis.

The disadvantages of an intraperitoneal implantation are the danger of intestinal adhesions forming around the short piece of exposed ureter in the bladder, perhaps leading to intestinal obstruction, and, should there be functionating pelvic organs present, the ureter in the event of pregnancy may become so distorted as to impair the functions of the respective kidney very seriously.

Among the methods adopted for intraperitoneal implantation it seems to me that the one applied in my case deserves a trial, if a suitable case presents itself, owing to its simplicity, facility of execution, and the favorable result which must necessarily follow if the operation has been aseptically performed and no shock or complication from another disease sets in to terminate life. The ureteral catheter should not be left longer than forty-eight hours, because by that time the adhesions between the bladder and the ureter are sufficiently firm, and to leave the catheter longer is liable to produce a ureteritis.

Although I consider that uretero-cystostomy for the relief of a uretero-vaginal fistula is an exceedingly desirable operation, and superior to some of the vaginal operations done to give the patient relief from the involuntary loss of urine, there are vaginal opera-

tions which should have the preference, if it is possible to do them, notably that advocated by Dührssen, by which the ureteral and vesical mucosæ are directly united after splitting the lower end of the ureter, so that there seems to be no possibility of a stenosis taking place at any future time; besides, by Dührssen's technique torsion of the ureter is avoided. Such method is the only one which in my opinion fully deserves the name of kolpo-uretero-cystostomy.

I object to total kolpopleisis absolutely. It should not be tolerated, because it is only a question of time when such patients will develop a pyelonephritis, because the residual urine frequently undergoes changes with the liability to the formation of calculi, aside from ethical reasons.

To sacrifice a kidney for the abolishment of the fistula should be a *dernier ressort*. Even if a nephritis or a pyelitis exists, other measures should be tried—for the former, diet and proper medication; for the latter, washing out the pelvis of the kidney.

DISCUSSION.

Dr. MANN: Dr. Reynolds asked me to say a few words on this subject, and I do so with great pleasure. I believe I was the first one to bring the subject before the Society from its medical aspect, and I am very glad to know that Dr. Reynolds is working in the same line, and that he has added certain points to our knowledge of the subject. I think a very interesting point in his paper is the observation he has made in regard to the difference in secretion of the two kidneys, where the ureters are affected. We can explain it by reflex action, possibly, and I hope he will continue his observations in this matter until something a little more definite is known regarding it. We have always looked upon the action of the kidney as something rather independent of local conditions, perhaps too much so, and have considered it the result of general states of the system. I think that the most important point that Dr. Reynolds has brought is that the symptoms of ureteritis are mostly due to conditions of the bladder, that an irritation of the bladder around the mouths of the ureters is what causes the symptoms. I have had that exemplified of late years, in one case particularly, where there were no symptoms of vesical irritation, and in which the bladder seemed to be unaffected. The kidneys were

affected, and the ureters, as could be made out. Although the patient ultimately died of the kidney disease, she never suffered from any symptoms referable to her urinary organs except those of renal insufficiency, and things of that kind. I have found, as Dr. Reynolds has, that the treatment of the bladder will give more relief than anything else, and the local applications of nitrate of silver. It is very satisfactory to know that this distressing complaint—because it is sometimes fearfully distressing and troublesome—can be relieved, as far as the most painful symptoms go, by local treatment of the bladder. As regards the treatment of the ureters themselves, locally, I have been a little in doubt. I have passed the catheter more or less, and attempted to wash out the ureters, and I have seen one or two cases where there seemed to be a stricture at the mouth of the ureter. The dilatation of this stricture seemed to do good, and the patients were relieved by simply passing a bougie into the opening; but as regards washing out the ureters and treating it locally, I think we have got to do it with a great deal of caution. There is a good deal of danger of adding traumatism to the existing conditions, and particularly we must be careful of maintaining a rigid asepsis. We can not be too careful in carrying out that point, and insisting on the danger of infecting the ureters and making them worse by our manipulations. The distinction between the chronic cases and the acute cases is also a good one. Most of the cases that we see are chronic, but I am sure that anybody who has had his attention directed to this must have seen acute cases. The acute cases which I have observed most have been those following labor, and they are certainly very noticeable. But the acute cases which come on as the result of an acute attack of lithæmia or uric acid, and so on, in the urine are often overlooked, and I am sure that a great deal of the pain in the pelvis in woman is due to irritation in the ureters, and is due to the abnormal conditions of the urine, the urine passing through the ureters and irritating them in that way. I think that is a very important point, which has not been fully appreciated. They may have attacks, periods of intermission, and then again attacks, which is something we must learn to recognize. The “cardinal points,” as Dr. Reynolds calls them, I have not observed, because my attention has not been called to them. I shall look out for them and see if my clinical observation upholds his. With regard to the treatment, I think the main point is the carrying out of the die-

tetic and hygienic treatment, the careful regulation of the surroundings of the patient, so as to get a normal condition of the urine, and the injection of water and use of baths, and all those minor details, are of the utmost necessity. I have a case that has had ureteritis for two or three years; she has spent her winters in the South, at mineral springs, taking exercise, and so on. Late examinations show that she is perfectly well. I have no doubt but that she has to live with the greatest caution and care.

Dr. DAVIS: I desire to say a word about the medical treatment of the cases described by Dr. Reynolds. The value of massage has been continually shown to me in several cases suffering from symptoms of ureteral irritation. I desire also to call attention to the remarkable influence in women exerted upon the constitution of the urine by the use of certain narcotics and stimulants, notably tea. In studying metabolism in women pregnant and non-pregnant, I have found an obstinate condition of the urine, not yielding until the habit of chewing tea leaves was detected and broken up. Again, as to the amount of urea passed from a given kidney: in studying the metabolism of a pregnant woman, and especially of women after labor, there comes a time when the wave of urea elimination gets less just before labor, followed by a sharp ascent of the wave immediately after parturition. At times a decreased amount of urea in the urine means the effect of metabolism and renal insufficiency, and a temporary increase means simply that there is thrown in on the excretory organs of the woman so great an amount of waste material as to cause a temporary excess. So that either a deficiency or a temporary marked increase points for the time being to danger of defective metabolism.

Dr. SMITH: I think this is a very important condition, because so many women suffer from it. In this connection I wish to state my conviction that ureteritis without inflammation of the rest of the genito-urinary tract is very rare. I admit the possibility of local infection from gonorrhœa, but it is rare in women and commoner in men. I think that ninety per cent. of this trouble is due to uric acid or oxalic acid in the urine. It is an irritation due to the condition of the urine; and I would say, read Dr. Mann's paper of last year for the treatment. The disease is simply irritation of the genito-urinary tract. The bladder is irritated as well. The remedy is to try to stop the uric acid or oxalic acid. What are these two chemicals? Urea is perfectly innocent. It gives us no trouble, no

matter how much there is of it, but when there is not enough oxygen to make urea the nitrogen stops at uric acid. Less oxygen still is oxalic acid, and that is very irritating. The remedy is—get in more oxygen and shut off the nitrogen. Give them exercise. These women are eating pastry and pickles all the time. They are eating between meals, and doing very little physical work. Give them more work and less to eat; pour in two quarts of water a day to dilute these crystals that have not been oxidized in the urine. Then give them one drachm of bicarbonate of soda every day. If you will attend to those points you will have no trouble.

Dr. REYNOLDS (in closing): I am interested in what Dr. Mann said about the local treatment of the ureters, because I had been rather more profoundly impressed with the danger and the probability of increasing rather than lessening the inflammation, and have not dared to try it in cases in which there was not pus in the kidneys. I think that the cases due to injury during labor, which I did not refer to in my paper, are extremely interesting. I wish to correct any possible excess of emphasis which I may have laid upon the important points. I have seen two or three cases in which the tenderness was limited to those points, and pursued exactly the course of which I have spoken; but there are a large number of cases in which the cardinal points stand out only when one is looking for them, and in which the progress of the affection is limited to a tenderness, which decreases above as it increases below, following the general course of the urinary passages. I was much interested in Dr. Davis' remarks about eating tea, and have learned much from Dr. Lapthorne Smith's explanation of the effect of exercise, which had not come to me in the clear way in which he put it. I would like to say that I have found the application of small doses of mercury for deficiency of urea in the urine of the greatest benefit in cases of pregnancy where the urine is abundant and the specific gravity low. I want to conclude my remarks by emphasizing my belief that our knowledge of these conditions is very elementary, and it is rather my expectation that we shall eventually find that ureteritis is usually secondary to disturbance of a kidney; but even in that event I think we shall find the ureteral complication of great value in diagnosis.

INTESTINAL BACTERIA AS A SOURCE OF INFECTION
COMPLICATING OBSTETRIC OPERATIONS,
WITH REPORT OF CASES.

BY EDWARD P. DAVIS, M. D., PHILADELPHIA.

(Author's Abstract.)

The first case described was that of a young colored girl who had a contracted pelvis, and who was admitted to the Jefferson Maternity so late in pregnancy that the induction of labor was not admissible. The patient's general condition was good, with the exception of obstinate tympany and distention of the upper portion of the abdomen. She came into spontaneous labor after her bowels had been repeatedly moved by laxatives. As the fœtus failed to engage in the pelvis, and as the vagina and vulva were small and ill developed, the patient was delivered by cœlio-hysterectomy, a living child being born without difficulty. The stump was treated by the intrapelvic method. There was no hæmorrhage or shock. The patient developed within forty-eight hours excessive distention of the small intestine, and vomiting. The bowels moved and the stomach was washed out, with but temporary relief. A clinical diagnosis was made of infection by the *Bacillus coli communis*. Efforts to remove the obstruction to the bowel failed, and the patient died. Autopsy showed multiple ulcers of the small intestine, with lymphangitis of the peritonæum and exudate compressing the bowel. Bacteriological examination showed pure growth of the *Bacillus coli communis*, with *Micrococcus pyogenes albus*. Intestinal ulcers were demonstrated by culture examination to have been the point of infection. The incision had healed by first intention, and the stump was healing.

Case II was that of a Polish woman, whose pregnancy was remarkable for profound melancholia and sleeplessness. She had a normal pelvis, and her labor, although tedious and difficult, was successfully terminated by forceps. She bore a large, living child, which survives. She had been unusually excitable before labor, and at the time of delivery her temperature was 101°, her pulse 120. She speedily developed a high temperature and rapid pulse, with acute mania. The uterus and genital tract were thoroughly antiseptized without result. Symptoms of puerperal septic infec-

tion were absent. The patient endeavored to leap from the window of her room, and attacked one of her nurses. She refused food, and was fed by a stomach-tube. Prolonged sponging, bathing, and packing, the use of sedatives, forced feeding, and stimulants had little effect upon her case. She died comatose eleven days after delivery. On post-mortem examination, a congenital abnormality of a loop of large intestine in the center of the abdomen was found. This contained masses of partially dissolved feces. The genital tract showed no evidences of infection. These autopsies were made by Dr. Bevan, of the Jefferson Hospital, who has observed in three hundred autopsies at the Philadelphia Hospital eighteen cases of this anomalous loop in the intestine. Fourteen of these patients were insane, or had been at some previous time. Two committed suicide; two were brought into hospital unconscious, dying of toxæmia. In the case reported the bowels had been thoroughly moved by mercurials and salines. Examination of the blood showed no septic bacteria, but molecular disintegration of corpuscles. A clinical diagnosis of acute puerperal mania was made, while autopsy gave, as a cause of the mania, chronic toxæmia from absorption of bacteria and ptomaines from an abnormal loop of the large intestine. A colored illustration of the intestinal ulcers in Case I was exhibited.

DISCUSSION.

Dr. MURRAY: I think we are all under great obligation to Dr. Davis for bringing this before us. In considering the subject and looking back I remember two cases, one particularly that I saw in consultation with a member of this Society, delivered with perfectly aseptic precautions—a young lady of nineteen, who had always been troubled with constipation. After about five days there was evidence of septic peritonitis. Then the symptoms got better, without giving at the uterus any evidence that there had been septic infection. I curetted the uterus to make sure that there was no infection left there, and washed it out. Another case which I saw out of town about a year ago had the same history, only that this patient not only had an absence of anything in the uterus to explain the septic infection, but the symptoms all disappeared after five or six days' use of full doses of calomel, given one tenth of a grain an hour for five or six hours, then salines. We finally got the bowels in good condition, but she caught pneumonia, and for about a week

I had to give her the strongest kinds of tonics, and she recovered. Looking back at that case, with a very careful obstetrician whose word I would take—and I had abundant proof that there was no sepsis from the uterus—I can but feel that there was some condition from ptomaine poison or bacteria which the doctor has mentioned as a causation. It brings to our minds forcibly the necessity of taking care of our patients before confinement. We are to look on them now, with our aseptic precautions, as almost certain to get well. Once in a while we lose a case where we might have prevented such a result if we had prepared them as we would prepare them for any other operation.

Dr. GRANDIN: This exceedingly interesting report, it seems to me, teaches us a lesson as well as gives a warning. The lesson it teaches is that it offers us an explanation of cases which hitherto have seemed to us of an exceedingly obscure type. I confess I have never made a diagnosis of lesions of this character, and yet, as I look back in my experience, I can recall cases where, had an autopsy been performed, I question not that the same conditions would have been found. There is a danger, however, associated with these cases that it is going to cause us sometimes to rest satisfied with the diagnosis of possible ptomaine absorption, and lead us away from septicæmia. It is something like the old explanation of auto-infection, which we all accepted once, but which I trust we all reject to-day in the sense in which it was promulgated by our distinguished Fellow. I have no criticism to offer on the cases, because the autopsy gives us an adequate explanation of the cause of the symptoms and the fatal result. I would like to sound a note of warning, lest in future we have a crowd of such cases reported. The most important lesson is that we are not accustomed to look after our pregnant patients with that accuracy and that care which they deserve and which they require. We are not accustomed to insist on the intestinal tract being thoroughly empty. We are too apt to take the word of the woman that she has had a daily evacuation. She may have had it, but the chances are that it is an insufficient one. The cases tell us that the gravid woman should be watched carefully from the beginning of conception to the end, and then the pregnant woman is not going to go to term with a distended gut, and with conditions that lead to absorption from the intestinal tract and symptoms such as have been dwelt upon.

Dr. HARRIS: In a vague and indefinite way I believe that the

impression has gone abroad that we have infection in the pelvis at times on account of the near relation of the gut to the exposed parts after operation. I do not believe that Dr. Davis means to have us infer that he will account for all his unaccountable cases of septic fever in this way. The gentleman, as he will no doubt tell us, is simply giving us one explanation, and he perhaps will not venture to say as yet what proportion of unaccountable cases of pelvic fever are due to this cause. I certainly think that there is very little danger, as the speaker before me said, that it will do any harm in diverting the attention of the profession from the very good measures which have so successfully driven both mortality and morbidity out of the lying-in chamber. I think this is a thing that we ought all to remember, and if there are any others of us who are competent, I think it would be well for us to follow out these lines.

Dr. CUSHING: I wish to call attention to the striking analogy of this case, and the cases we have learned to recognize, of rising temperature and serious symptoms after laparotomies, so that it has become the rule to take care of the bowels and get them thoroughly purged beforehand. As we all know, Lawson Tait founded a theory that by giving cathartics after operation certain cases could be cured where symptoms of peritonitis had already begun, and that septic peritonitis could be cured if salines could be given abundantly and early enough, the probability being that cases he cured by giving salines were really cases where putrefactive processes were going on in the bowels.

Dr. DAVIS (in closing): I wish to thank the gentlemen of the Society for their very kind reception of what is a purely clinical study. I have no theory to offer upon the subject. I present to a society of my superiors in brains and in experience clinical facts, and I have no fear that Dr. Grandin will not sufficiently cleanse his hands after hearing this paper. This is not a paper to be given to a society of practitioners or of medical students. It is for the judgment of gentlemen who are experienced, and for their study. Dr. Murray spoke of pneumonia in his case. I did not go into the pathology of these conditions at all, except to say that in each of these cases catarrhal pneumonia was present. I am asked about the diagnosis. If I had not seen a previous case I could not have made any diagnosis whatever, and I based the diagnosis in the first case on the comparatively low temperature with the very high

pulse upon the fact that no history of chill was obtainable. These things are the work of the pathologist, and it is the pathologist who teaches us our lesson. I have inquired as to whether there is any purgative of especial value as an antiseptic in the intestine. I am told by Professor Hare, of Jefferson Medical College, that in his judgment and experience the best method of purgation and a thorough antiseptic consists of minute doses of mercury, especially of the bichloride. He advises me to give $\frac{1}{150}$ grain of bichloride. Other patients do well with the large doses of calomel at night (two grains and a half) and saline in the morning, and continued doses of bichloride for two or three days.

TREATMENT OF INTRALIGAMENTOUS AND RETROPERITONEAL UTERINE MYOMATA.

BY WILLIAM H. WATHEN, M. D., LOUISVILLE, KENTUCKY.

(See page 32c.)

DISCUSSION.

Dr. CUSHING: Where the tumor is developed retroperitoneally it comes out very easily; all you have to do is to make out the landmarks, split the capsule, and, as a rule, the whole thing comes out very easily. The method of tying on one side is very valuable. I can hardly imagine a condition of things where a man should stitch the sac to the abdominal wall.

Dr. HARRIS: I want to take this opportunity of saying that I wish I had known enough to try the method that the doctor proposes—that is, tying from the vagina the uterine arteries, then entering the abdomen from above and tying the ovarian arteries. I began an operation last fall at which I worked a very long time, and, after I had started, I would have given a good deal of money to have retreated. I kept tying and tying until my assistant said I had used thirty-six yards of silk.

Dr. GORDON: As I indicated yesterday, I frequently make the abdomino-vaginal operation. I think in many cases it is very much easier, and especially in all these cases of malignant disease where we are to remove the uterus. I do the vaginal operation first, ligate the uterine arteries, and then open the abdomen from above. I have done it in hysterectomy for fibroids, particularly where the

cervix is very long and where the tumor does not dip down into the cervix. I have frequently divided the vagina from the cervix, and it gives me great relief in the rest of the abdominal operation. Sometimes, with a very long cervix—which I always intend to remove anyway in all cases—it is a little protracted for you to do it all abdominally, and yet in the majority of cases I am able to do that with the operation that I make, which is the continuous suture. I always use catgut, and I never cut it from the time I begin my operation until I finish it, of course having a separate one for each side. I ligate, first placing a Spencer-Wells forceps under the tube and ovary, and then commence my continuous suture below that, cut and sew, cut and sew, closing the broad ligament as I go along down, and lift the tumor out until I get down to the point of the uterine artery, and then divide the peritonæum in front of the uterus and behind the uterus, dissect it down, and keep up the continuous suture.

Dr. JOHNSON: It seems to me that if we attempt to enucleate these tumors completely we will get into very vascular and dangerous ground. But I see no reason why we can not continue this anterior and posterior flap, which we all make in removing a fibroid tumor, and make a lateral flap, and let some of the dangerous adhesions that are binding the tumor down laterally slip off to one side as the bladder is slipped down in front by the anterior flap, and close this up, as Dr. Gordon has said, by whipping over with a continuous suture, and in that way not get into this desperate and dangerous vascular region by attempting to enucleate all the way down before we get to the uterine artery to tie it. But in those cases where I do not quite dare do that I think the combined operation spoken of so many times would be the most perfect and successful one, to tie the uterine arteries from below and shut off the tremendous amount of hæmorrhage which might come from attempting to tear loose all these adhesions, and to thoroughly enucleate the tumor from above, in the same line as was suggested by the speakers yesterday in talking of the paper read by our distinguished Parisian friend. Suit your kind of operation to the particular kind of tumor that you have to deal with, instead of being bound by any particular rule which you may make for yourself.

The PRESIDENT: I would like to detain the Society for a moment in reference to the various methods of controlling this vascular area of which the doctor speaks. There is no doubt in the

minds of men who are indulging in much of this work that the stress laid by Dr. Gordon on the combined method is aptly put just now. At the same time, when working from above we are oftentimes enabled to reach this area in a manner which at first sight might seem extending the operative field too far, and yet upon reflection, especially in passing in review those cases that are familiar to us all, of large intraligamentous growths, we see that after all the region is exposed to us in such a manner that the origin and root of the hæmorrhage can be readily reached. I allude to the ligation of these vessels at a point much nearer their origin than is usually employed. If you recollect the position of these intraligamentous growths, you will readily convince yourselves that in dissecting apart the layers of the broad ligament you lay bare the origin of the uterine arteries, and the vesical arteries, and even of the vaginal, carrying you up to the bifurcation of the internal iliac artery, where, by securing the anterior trunk of that vessel, or, if it happen not to contain the vessel in question, the obturator and other vessels below, all of these structures are exposed, and so placed within easy reach in the Trendelenburg posture, and my experience teaches me that it is a comparatively easy matter to control them. In fact, within the last year I have succeeded in ligating these vessels, irrespective of any opening up of the broad ligament in the manner suggested, by simply drawing aside the layers of the broad ligament; in other words, following out the technique of the old operation familiar to all of us for aneurism of the posterior trunk of the internal iliac artery. The steps of the operation by which we reach that vessel are quite familiar to you. Following out the steps of that procedure, you find comparatively little difficulty, with the aid of the Trendelenburg posture, in reaching these vessels and ligating them there *in situ*; and that having been done, it is surprising with what ease you can complete your operation. Now, in this case, where you cut off so large an area from its blood supply, it is interesting to note what are the results. Here we gain from what is known in reference to the ligation of the internal iliac, because you understand perfectly that that operation has been done with sufficient frequency to show that none of these necrotic processes which are dreaded in the ligation of some vessels are to be met. Thorough anastomosis exists, on the one hand, between the branches of the posterior trunk of the internal iliac through the internal pudic to the branches of the deep profunda, which gives you a sufficient

amount of vascular supply to the lower genital organs to nourish them against any damage. But, apart from this, you will find that the anastomosis which occurs between the branches of the epigastric and the obturator are of vast importance in this connection; and you will find that the middle hæmorrhoidal plays a more important part than has been assigned it. This vessel, coming off from the prolongation of the anterior trunk, sends its branches not merely to the rectum, but to the whole posterior vaginal area, and sends its shoots up the posterior wall of the uterus. So that you see that we have here an unusual area of anastomosis which insures this region against any damage which might come from the ligation of apparently so important a system at its origin. I would therefore merely suggest that, in connection with the class of cases alluded to by Dr. Wathen, and emphasized by Dr. Cushing as well as by Dr. Gordon, you take into consideration the propriety of cutting off your blood supply as close to its origin as it is possible to do without inflicting undue damage upon structures that extend beyond; and this means that it is hardly necessary to ligate your internal iliac—that ligation of the anterior trunk will quite suffice for doing this work.

Dr. WATHEN (in closing) said: If you understood my paper you will remember that I referred to the ligation of the uterine artery *per vaginam*, especially in those cases where the tumor is very tightly wedged in the pelvis, and suggested that the same method, if preferred, might be practiced in the removal of other myomatous tumors, and that the ligation should be near the region of the uterine artery beyond the vaginal. Our worthy President, going still further, ligates the artery from which the uterine artery arises. Many of you have had cases that rose but little out of the pelvis, and that you could not pull with great force, where you could find no vestige of the broad ligament except at the top of the pelvis. Now, in these cases you are compelled to enucleate after the same fashion for a considerable time, and often enucleation is very difficult, before you can reach the uterine arteries. In just such cases I believe that the previous ligation *per vaginam* will be of great value, and very soon you can pull your uterus and tumor higher in the abdomen. If you have ligated the arteries from below, and separated the vagina and the tissues some distance up, it is certainly an easy matter to ligate your ovarian arteries and hurriedly separate the broad ligament and haul out your tumor from below. I

have never seen, and I do not know that I have ever read of any case where in these growths the tumor goes below the uterine artery. It seems to be invariably below the tumor, so that it can be reached. As to the flaps suggested by Dr. David Johnson, in this case we can not make any flap. It simply makes everything extraperitoneal. You may remove all superfluous tissue and suture the capsule, and let it fall in the pelvis the same as you do in the abdominal method. As to the adhesions down in the pelvis, spoken of by Dr. Johnson; we do not have adhesions. That amounts to nothing. It is the unfolding of the broad ligament, and we must dissect it, not between the peritonæum and adhesions, but between the peritonæum and the tumor or the uterus.

A recess was taken until 3 P. M.

STATUS OF GYNÆCOLOGY ABROAD.

GERMANY.

Treatment of Pelvic Exudates.

Dr. EICHHOLZ, in the *Frauenarzt*, May, 1896, writes from Bath Kreuznach his experience in the treatment of pelvic exudates. Considerable progress has been made in the treatment of this condition by the means at our command, such as saline baths, compresses, tampons, irrigation, and massage. Much improvement has been noted since the introduction of massage. Yet with all this the process of absorption is a very slow one, and often the patience of patients and physician is exhausted before the improvement is apparent. Again, there are many cases where massage can not be employed with advantage.

When we consider the effect of this condition upon adjacent pelvic organs, and realize that the patients are usually incapacitated for work, we can appreciate the importance of the treatment of this disease.

Thus far all of the researches of the chemical laboratory have failed to provide a remedy for this pathological condition, and we must turn to some therapeutical measure.

In order to promote absorption of an exudate or transudate in

any part of the body, we can not depend merely upon local therapeutics, but must take into consideration the general circulation and note the mechanico-physically active factors of the blood current.

The activity of the circulation must play a most important part in the absorption of exudates; for, obviously, the freer the circulation through a diseased organ the greater facility is offered to the lymphatics to return the extravasated serum to the blood current. Where there is infiltration of tissues there is always a venous stasis. This phenomenon is similar to that observed in structural disease of the heart. The defective action of the central organ causes increased pressure in the venous system, and finally transudation of serum into the tissue. Massage by direct pressure aids the flow of venous blood. Since the important researches of Oertel more scientific methods have been employed for the relief of this condition. Previous to these researches the treatment was limited to stimulating the heart's action by certain drugs. Oertel met this indication by strengthening the heart muscles by systematic exercise; the removal of the impediment to the flow of blood he accomplished by a dry diet. He recognized the fact that an unlimited introduction of liquid into the system must favor the disturbance of the hydrostatic equilibrium by increasing the pressure in the venous system, and thus imposing a larger amount of work on the heart. The success of Oertel by his system of exercise, mountain climbing, and dry diet is well known, and the correctness of his views are to-day acknowledged. By his method the blood is diminished quantitatively and improved qualitatively by the concentration. If the body is furnished with the minimum amount of fluid, and profuse perspiration is induced, a condition is reached when the fluids of the tissues are returned to the veins by their aspiratory action. The infiltrated tissue will naturally give up its excess of fluid with the greatest facility.

Those are the general principles, and are, of course, modified for individual cases. As regards *dry diet*, the author believes that we all drink too much. No animal will drink more than he actually needs. Man by excitants in his food creates an artificial thirst, and generally the sense of pleasure experienced by drinking is alone the measure for the quantity of fluids consumed, and the sensation of thirst is greatly influenced by habit. We can prescribe without hesitation the dry diet in every case of exudative disease. The

amount of fluids should be gradually diminished, and finally maintained at the minimum quantity, which is just sufficient to keep the uric acid and its salts in solution. As long as the urine remains clear the fluids may be diminished. After a short time, in addition to the reduction of the amount of fluids introduced, the secretion of fluid may be encouraged chiefly by inciting the skin to activity, as by baths, packs, mountain climbing, etc. The latter exercise the author advises because it causes profuse perspiration, and necessitates deep inspirations and strengthens the cardiac muscle.

If the exercise is impossible or inadvisable because of the pain, then a system of gymnastics and methods to induce perspiration should be adopted. Generally, in a few weeks the patient has improved so much that her capacity for exercise has greatly increased. The author thinks that the prescription of "rest and indulgence" is frequently given when it should be "judicious exercise." Absolute rest can not be employed for any length of time without great bodily detriment. Specialists are inclined to lose sight of the general health of the patient, and deprive them of exercise and air.

The author has pursued this plan of treatment for the past two years, and with exceedingly satisfactory results. The treatment was always the combined one—namely, the dry diet, regular exercise, baths, etc.—and so it would be difficult to say which part was the most important. The records compare most favorably with those of former years. In many cases the absorption took place with such astonishing rapidity, and the general health and local conditions improved so surprisingly, that the most skeptical would have been convinced. In fact, negative results only followed gross neglect on the part of the patient to follow the prescribed diet. A great deal of energy and self-command was needed to give up indolent habits and force the body into activity. To control the feeling of thirst is not at first easy, but it is astonishing how small an amount of water will satisfy the bodily wants after a few days.

FRANCE.

Vaginal Cyst.

Dr. TURGARD (*Semaine gynécologique*, April 7, 1896) reports three cases: First, a nullipara, thirty-six years old; thought that she had a prolapsus. On examination, a tumor the size of a pigeon's egg was found presenting between the labia. This tumor was so freely

movable that it gave the sensation of a hernia, but its true nature was determined by rectal and vaginal exploration. With cocaine the cyst was excised.

The second case occurred in a woman twenty-eight years old. Had two children, and during her second confinement her physician discovered the tumor. This was the size of a hazelnut, and was attached to the posterior vaginal wall. This was excised. Its contents were thick and of coffee color, probably of hæmatic origin.

The origin of these cysts is obscure. Huguier attributes to them a glandular origin; but there are no glands in the vaginal walls. According to others, these cysts are accidental hygromas produced by abuse of coitus or confinement; but the most probable theory is that they are of Wolffian origin.

The third case presents a tumor of the vulva. The labia of the left side are distended with a dull fluctuating mass. Before marriage patient had an abscess of the vulvo-vaginal gland; during pregnancy the mass appeared as described, but disappeared after confinement. After sitting down suddenly with force the present tumor appeared. This was treated by incision and irrigation. It was considered a vulvo-vaginal cyst, ruptured by the fall, and produced a hæmatoma.

Metrorrhagia in Aged Women.

Dr. MASSE (*Semaine gynécologique*, April 7, 1896) gives the credit to Dr. Monod of having first called the attention of gynecologists to this subject. In 1892 he cited three cases occurring in women from sixty to seventy years old. These were cured with ergotin and hot borax injections. In by far the majority of cases metrorrhagia at this time of life indicates malignant disease of the mucosa, or is dependent upon a fibroid. Still, there are cases where neither of these conditions can be found. Hæmorrhagic endometritis may arise suddenly in old women seven or eight years after the menopause. In the ten cases recently published by Monod the most interesting point noted was that the patients were nearly always very large and fleshy.

Does obesity, which is very frequent after the menopause, cause a modification in the mucosa of the senile uterus? Hermann and Fournieux, while studying this subject, found the muscular tissue lax and pliable, and the vessels atheromatous. Delert has proved the absence of the glands of the mucosa, and this tissue is very vas-

cular in women who have had endometritis. This senile degeneration of the mucosa probably predisposes to the uterine hæmorrhages; the ætiology, however, is still very obscure. It is evident that they may occur without the presence of a malignant growth or fibroid, as shown by the case related by the author.

In regard to treatment, in some cases ergotin and hot injection are sufficient, while in others it is necessary to resort to intra-uterine medication. All kinds of caustics have been used with varying success. The author proposes the application of electricity.

The Treatment of Peritoneal Infection.

Dr. R. PICHEVIN (*Semaine gynécologique*, April 7, 1896) observes that surgeons and gynæcologists differ greatly in their treatment of a case when pus has entered the peritoneal cavity during an operation. Some, following Martin, do not hesitate to wash out the cavity freely with sterilized water, while others avoid all fluid, but wipe with gauze the soiled area and drain by Mikulicz method, or drain through the vagina. The exponents of each method claim excellent results. Which is the better procedure is still to be determined. In France, flushing the abdominal cavity is not resorted to now so frequently as formerly.

When symptoms of infection occur, then, what is the best treatment?

Long ago the injection of serum by intravenous and subcutaneous routes has been discussed at the Society of Surgeons. Lejaes has investigated the intravenous method, and reports interesting results. The subcutaneous method is so safe and easy of execution that, unless the intravenous method is clearly proved to be superior, it should be tried.

When septic infection occurs, it may be asked if it would not be better to open the abdomen again, and freely wash out the cavity with a borated solution and a normal solution. The author has obtained such a satisfactory result in one case by those means that he is disposed to further test the method.

Bouilly is in the habit of draining by the abdomen every time he anticipates a post-operative complication. As soon as the first signs of infection appear, he injects aseptic fluids into the abdominal cavity by means of the drain, and declares himself well pleased with the results. The author indorses this method. The great advantage of it is the facility with which the fluids of the peritonæum can be

examined. Quite recently the author had occasion to congratulate himself for having used this method, and for having submitted the peritoneal discharges to bacteriological examination. He was unfortunate enough to rupture a pus sac in the cavity. Aseptic gauze was used to remove the pus, and an abdominal drain inserted. Two days later the symptoms became serious. The abdomen was very tympanitic; pulse 120, small and wiry; respiration 50. No vomiting, but thirst excessive and tongue dry. Previous to washing out the cavity, the author had the serous fluid examined, and found no micro-organisms, and from that he was able to diagnosticate the beginning of an intestinal occlusion, caused perhaps by the aseptic gauze. This was immediately removed and cathartics given, and the patient recovered. Intestinal occlusion following operation often simulates peritonitis. Intestinal obstruction may be caused by pathogenic germs introduced into the peritoneal cavity, but it can also occur as the result of compression, or by intestinal paresis. A bacteriological examination will determine this with certainty, and should not be neglected. In all cases, and especially when it is ascertained that no peritoneal infection exists, cathartics should be promptly administered, and, if necessary, electricity should be applied *per rectum*. In the class of cases referred to a cathartic has a remarkable effect, and the author is inclined to believe that many cases of peritoneal infection cured in this way were cases of intestinal paresis, or were obstructions caused by compression. Doubtless irritation or compression of the intestines during operation may cause serious symptoms, and in these cases cathartics are used with advantage.

In true peritoneal infection the author does not rely upon purgatives, but believes that the best results are obtained by the intravenous injection of serum or by the subcutaneous method, and, if necessary, to flush the peritonæum with sterilized water by the method of Bouilly, or reopen the abdomen to do it.

Cyst of Wolffian Body.

Dr. FÉLIX LEGUEU (*Semaine gynécologique*, April 7, 1896) reports that, upon dividing the broad ligament in order to remove an intraligamentous cyst, he found attached to the cyst, and running upward and outward toward the lumbar region, a cord, or rather tube, with a smooth and roseate internal surface. This structure did not feel like the ureter, and yet, to be upon the safe side, it was stitched into

the superior angle of the abdominal wound after the removal of the cyst. It healed without incident and without any discharge from the divided end of the tube. This tube was found to open into the cyst.

The pathological examination showed that the tube was formed of fibro-connective tissue, and covered by cylindrical epithelium of a single layer, which penetrated the fibrous tissue. The cyst wall consisted of fibro-connective tissue covered with pavement epithelium.

The canal communicating with the cyst could not possibly be Gärtner's canal running along the lateral wall of the uterus and vagina. It could only be the inferior part of the Wolffian canal, and the cyst had developed either in the canal itself or in one of its tubes.

BELGIUM.

Intra-uterine Fibroid infected by the Bacillus Coli.

Dr. DEPLA (*Presse méd. Belge*, February 23, 1896) reports the following case: Patient thirty-seven years of age; virgin; presented a large fibroid. She suffered from profuse hæmorrhages, preceded and followed by fœtid discharge. At the time of operation the patient had been confined to bed for several weeks. Her pulse was 140, and she ran an evening temperature.

The operation presented no difficulties, and was performed by the intraperitoneal method with a pedicle.

When the cervix was divided, a purulent discharge flowed from the cervical cavity. After the operation the temperature continued, and on the sixth day a large abscess, situated between the skin and abdominal fascia, was opened. In the pedicle the same condition was found; this was drained by the vagina. The patient, without any symptoms of peritonitis, died. The tumor, upon examination, was almost necrotic. The bacteriological examination gave pure cultures of the coli bacillus. The author is convinced that the uterus became infected from the rectum.

PÆDIATRICS.

AUSTRALIA.

One Hundred Cases of Diphtheria treated with Antitoxine in Comparison with the One Hundred Preceding Cases treated Without.

C. P. B. CLUBBE and W. F. LITCHFIELD, Sydney (*Australasian Med. Gaz.*, February 20, 1896), report as follows: Both series, of one hundred cases each, were treated in the same way with the exception of the use of the antitoxine; in every case under consideration the Klebs-Loeffler bacillus was found. The following table shows the mortality in the two series:

		Cured.	Died.	Death-rate.
First 100:				
Tracheotomies.....	59	19	40	67.7
Simple diphtheria.....	41	30	11	26.8
Total.....	100	49	51	51
Second 100:				
Tracheotomies.....	48	29	19	39.5
Simple diphtheria.....	52	48	4	7.6
Total.....	100	77	23	23

As regards sex and age, the two series were pretty nearly alike; the cases of Series I were very slightly more severe. While the ten malignant cases of Series I all died, two of the six in Series II recovered. Many tracheotomies are done on admission, the child being brought to the hospital only when the dyspnœa becomes urgent; but in those cases in Series II which permitted of delay, fewer tracheotomies were required later—that is, the antitoxine, if given sufficiently early, will in the majority of cases obviate tracheotomy. Of course laryngeal diphtheria without antitoxine does not always necessitate tracheotomy. Exceptionally the antitoxine seemed to increase the dyspnœa, probably from swelling of the membrane. The tracheotomy tube can be removed sooner in those treated with antitoxine; in the tracheotomies of Series I it was left in place an average of 7.7 days; in those of Series II, five days. Though antitoxine should be used early, it nevertheless is of service later; in the seventy-seven cases that recovered, the fifth was the average day of the disease on which it was given. Within twenty-four hours after its exhibition, unless the case be very malignant, the child becomes much less apathetic; this

is in marked contrast to the slow mental gain in Series I. The disappearance of the membrane in Series I occurred on an average after ten days; in Series II, after four days. The local effect is a curling up of the edges of the membrane, which comes away in pieces, but is not dissolved; at the same time the swelling disappears. No wound diphtheria or reinfection has been noticed since the use of the antitoxine. In thirty-two cases urticaria appeared, on an average nine days after the injection of antitoxine; in two cases there were accompanying joint pains. The amount and duration of the rash are generally in direct proportion to the dose of antitoxine; preceding or during the rash there may be fever. Though the effect of antitoxine upon temperature and pulse is hard to estimate, both gradually decline, and reach normal when the throat has cleared, usually about the fourth day. The occurrence of albuminuria and paralysis was about the same in the two series; but very likely the frequency of both would have been diminished could the antitoxine have been used earlier.

Regarding bacteriology, when the bacilli were distinctly short the cases were usually mild, but the medium and long varieties may occur in mild, medium, or severe cases irrespectively. The bacilli do not disappear from the throat sooner under the antitoxine treatment. The authors conclude that the associated organisms in diphtheria have no great importance, clinically or bacteriologically, because (*a*) they are common in healthy throats, and (*b*) also in non-diphtheritic sore throats in which none of the severe symptoms ascribed to them appear; (*c*) they are frequently associated with mild diphtheritic sore throats as well as with severe ones; (*d*) the authors have not observed the acute local or general abscesses, or erysipelas, or septicæmia, which would be expected; (*e*) nothing in the clinical picture implies a mixed infection, the severe cases being merely a mild process exaggerated; (*f*) diphtheria antitoxine always ameliorated the symptoms provided pathological destruction of tissue had not occurred. Of course a true mixed infection may occur, but it should manifest itself as such rather than as an exaggeration of the diphtheria. Of the fatal cases treated with antitoxine, two died of broncho-pneumonia, two (both malignant) of toxæmia, four (all severe, two malignant) of post-diphtheritic heart failure, and fifteen of asphyxia, within a short time after tracheotomy.

Conclusions.—(*a*) Antitoxine must be given as early as possible. (*b*) Of cases not thus early treated, the laryngo-tracheal ones present the greatest mortality. (*c*) Regarding the immediate cause of death in tracheotomy cases, further observations are necessary.

Treatment.—Antitoxine alone is not sufficient ; though it relieves the toxæmia, as is shown by the disappearance of the apathy, there is still in the laryngo-tracheal cases the danger of asphyxia, and in all cases the dangers of asthenia, heart failure, and paralysis. Nearly all the cases had brandy and perchloride of iron. The throats were swabbed, at first every four hours, later twice daily, with liquor sodæ chloridi. In nasal diphtheria the nose was syringed twice or thrice daily with boric lotion. Watch was kept for the occurrence of coughing on feeding, which indicates some paresis of the muscles of deglutition, and directly it appeared the child was fed by catheter through the nose. This, as well as other paralyses, calls for strychnine. Tracheotomy wounds must be kept clean and aseptic, and the child encouraged to cough at the times when the tube is removed for cleansing. It is a singular fact that trypsin, which formerly was often successfully used in dissolving the membrane, had no effect upon it in the cases treated with antitoxine.

In eight post mortems made upon cases in which tracheotomy was done on admission, there was little, if any, membrane found, but in most the bronchi and bronchioles were filled with a tough, tenacious, viscid, muco-purulent-looking material. The lungs were emphysematous, the hearts engorged with clots and dark blood, and the internal organs congested.

OBSTETRICS.

IRELAND.

Eclampsia, with Special Reference to its Treatment.

E. H. TWEEDY (*Dublin Journal of Medical Sciences*, March, 1896) considers the ætiology of eclampsia as due to some toxine similar to that which gives rise to uræmic convulsions. Owing to the fact that the centers of nervous control are in a more unstable condition during pregnancy than at other times, smaller quantities of toxine will provoke convulsions than in the non-pregnant state. Besides this, there is an increase in the formation of toxins during pregnancy over the non-pregnant state. In the treatment of eclampsia he condemns chloroform, chloral, and the bromides as powerful cardiac depressants. Chloroform, by limiting the amount of oxygen, actually increases the convulsions in some cases. Pilocarpine he considers a dangerous

heart sedative and attributes little advantage to profuse sweating as a vicarious function. The depletion of the blood by sweating only concentrates the toxins. He claims that œdema of the lungs in convulsions is largely due to fluids of the mouth passing down the trachea, as the œsophagus is closed and the glottis open. This, he says, can be proved by a nose tube which passes into the larynx; the air will be forced out of the tube during the expiratory act, while if in the œsophagus the air will come out during inspiration, due to the upward pressure of the diaphragm. Hence patients should not lie on their backs but on the side, and mouth-gags should not be used. He also condemns the induction of labor—premature or otherwise—as injurious. The method of treatment pursued by him for the past three years in the Rotunda Hospital has been the hypodermic injection of morphine in large doses, beginning with half a grain, to be followed by a quarter of a grain in two hours, and so on gradually until the symptoms are alleviated or two grains have been given in twenty-four hours. If labor sets in, forceps may be applied after sufficient dilatation, but manual dilatation is unjustifiable. He discredits danger to the child from morphine, as *in utero* the child does not respire by the lungs. Bloodletting he favors, as a relief to the kidneys and a check to bronchial secretion. Nourishment should not be given during the attack. Hot water, stimulants, or medicine should be given by a nose tube or, better, by rectum. Purgatives are necessary. Digitalis, sparteine, and the nitrites are recommended as useful.

BRITISH INDIA.

Treatment of Placenta Prævia in Hospital and Private Practice, with Cases.

TEMULJI BHICAJEE NARIMAN, L. M. (*Indian Medico-surgical Review*, January, 1896), says that at the old Parsi Lying-in Hospital there have been in the past seven years seven cases of placenta prævia out of eleven hundred cases. These all occurred in the first six hundred and fifty cases; none in the last four hundred and fifty. At the new Parsi Lying-in Hospital there has been one case in three hundred cases. Of the first seven cases, three were *central* implantation, two *lateral*, and two *marginal* (two *os uteri*). Of the latter, one was a Vpara, aged twenty-eight years, in her seventh month. Vagina tamponed; stillborn child; no other aid.

The other case, an VIIlpara, aged thirty-five years, at term. Membranes punctured; child stillborn; no other aid.

Of the two *lateral* implantations (partly over the os uteri), one was a *IV*para, aged thirty-three years, at term. Placenta detached by finger; version and extraction of stillborn child.

The other, a *III*para, aged twenty-five years, full term. Membranes ruptured; vagina tamponed; living child.

Of the three cases of *central* attachment, the first was a *VI*para, aged thirty-one years, at term; placenta detached all round by finger; version and extraction; stillborn child. Second case, a *IX*para, aged thirty-eight years, at term; vagina tamponed; placenta detached by finger; membranes ruptured; version and extraction. Mother died in two hours; symptoms of cardiac thrombosis. Third case, *XV*para, aged forty-one years, at term; Barnes' bags for dilatation; membranes ruptured; breech presentation; natural delivery of stillborn child. The only case in the new Parsi Lying-in Hospital was a *V*para, aged twenty-eight years, at term; bleeding first occurred at the fifth month, and at irregular intervals since. On admission there was no bleeding; cervix would admit one finger; *lateral* implantation of placenta was recognized. Champetier de Ribes' dilating bag was inserted, pains began, and, after the bag was expelled, the membranes were ruptured and version done; a seven-and-three-quarter-pound living child extracted. Mother had normal puerperium. Five cases in private practice are reported under the same general management. All but one recovered, with two living children.

ITALY.

Cæsarean Section in Puerperal Eclampsia.

CARLO DECIO, of Milan (*Annal. di Ostet. e Gin.*, January, 1896), reports the case of a primipara, aged twenty-three, in the seventh month of pregnancy, who was admitted to the hospital suffering with eclamptic convulsions which occurred in rapid succession. On examination, the cervix was found to be undilated and rigid. Urine scanty and albuminous. Hegar's dilators were used up to the eighth centimetre, the amniotic fluid was partially withdrawn by Meissner's syringe, and a Krause bougie left *in situ* for twelve hours. Convulsions continued, but at longer intervals, modified by the use of morphine. As the patient was growing stupid, and no dilatation of the cervix could be detected, an examination was made under chloroform narcosis and the presentation found to be transverse. The foetal heart was inaudible. Owing to the apparent impossibility to dilate the cervix, and the critical state of the woman, it was decided to do

Cæsarean section as the quickest method of delivery. This was done in the ordinary manner by median abdominal incision, through which the uterus was drawn out and the fœtus extracted through a twelve-centimetre incision in the anterior wall of the uterus; the placenta was quickly removed, the uterine incision closed by three deep muscular sutures and ten peritoneal sutures. The abdominal wall was closed; whole time occupied was fifteen minutes. The patient rallied and under careful treatment recovered. No septic symptom arose. She left the hospital thirty-five days after the operation. The fœtus was dead and had begun to macerate. Weighed twenty-five hundred grammes and measured forty centimetres in length.

ITEM OF INTEREST.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNÆCOLOGISTS.

Preliminary Press Notice of the Ninth Annual Meeting at Richmond, Virginia.

The Ninth Annual Meeting of the American Association of Obstetricians and Gynæcologists will be held at the Hotel Jefferson, Richmond, Virginia, Tuesday, Wednesday, and Thursday, September, 22, 23, and 24, 1896.

The proprietors of the "Jefferson" offer special rates to the Fellows of the Association, their families, and guests, as well to any physicians who come to attend the meeting. It is confidently expected that the railways will offer transportation at a uniform rate of a fare and a third to all in attendance on the certificate plan. Let all obtain certificates from their local ticket agents, or from the nearest point where certificates are granted.

OUTLINE PROGRAMME.

The Association will meet in executive session with closed doors on Tuesday, September 22d, at 9.30 A.M., for the election of new Fellows. The open session for the reading of papers will begin at

10 A. M. Recess for luncheon at 1 P. M. Afternoon session at 3 P. M. An evening session will be held Tuesday at 8 P. M.

Morning session will begin Wednesday, at 9.30 A. M., for the reading of scientific papers. Recess at 1 P. M. Afternoon session at 3 P. M. Adjournment at 5 P. M. Executive session at 6.30 P. M.; annual dinner at 8 P. M.

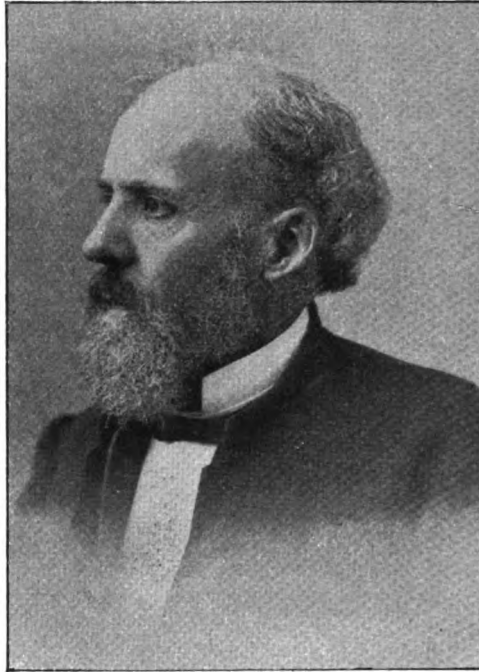
Thursday morning the session will begin at 10 A. M.; recess at 1 P. M. Afternoon session at 3 P. M.; final adjournment at 5 P. M. It is requested that a full attendance be present at the final session.

PAPERS PROMISED.

NOTE.—No attempt is made to arrange papers in the order in which they are to be read. That will be done in the permanent programme.

1. Principles and Progress in Gynæcology (President's address); Joseph Price, Philadelphia.
2. Vaginal Hysterectomy by the Clamp Method; Sherwood Dunn, Los Angeles.
3. Further Experience with Appendicitis; A. Vander Veer, Albany.
4. Relation of Malignant Disease of the Annexa to Primary Invasion of the Uterus; A. P. Clarke, Cambridge.
5. Treatment of Puerperal Septicæmia; H. W. Longyear, Detroit.
6. Treatment of Posterior Presentation of the Vertex; E. P. Beatty, Philadelphia.
7. Relation of Local Visceral Disorders to the Delusions and Hallucinations of the Insane; W. P. Manton, Detroit.
8. Differential Diagnosis of Hæmorrhage, Shock, and Sepsis; Eugene Boise, Grand Rapids.
9. Movable Kidney: Local and Remote Results; A. H. Cordier, Kansas City.
10. Pathology and Indications for Active Surgical Treatment in Contusions of the Abdomen; W. G. Macdonald, Albany.
11. Some Causes of Insanity in Women; George H. Rohe, Sykesville, Maryland.
12. Subject to be announced; John Milton Duff, Pittsburg.
13. Shall Hysterectomy be performed in Inflammatory Diseases of the Appendages? L. H. Dunning, Indianapolis.

14. Subject to be announced; Rufus B. Hall, Cincinnati.
15. Subject to be announced; George Ben Johnston, Richmond.
16. Dynamic Ileus: with Report of Cases; J. W. Long, Richmond.
17. Faradic Treatment of Uterine Inertia and Subinvolution; Charles Stover, Amsterdam.
18. A Plea for Absorbable Ligatures; H. E. Hayd, Buffalo.
19. Treatment of the Stump; J. F. Baldwin, Columbus.
20. Limitations in the Teaching of Obstetrics and Gynæcology as determined by State Medical Examining Boards; William Warren Potter, Buffalo.
21. Subject to be announced; Walter B. Chase, Brooklyn.
22. (a) The Philosophy of Drainage. (b) Treatment of the Pedicle in Hysterectomy, or Hystero-myomectomy in the Abdominal Method; George F. Hulbert, St. Louis.
23. Removal of the Uterine Appendages for Epilepsy and Insanity: a Plea for its more General Adoption; D. Tod Gilliam, Columbus.
24. Albuminuria of Pregnancy; A. Fr. Eklund, Stockholm.
25. Subject to be announced; Lawson Tait, Birmingham.
26. Subject to be announced; Walter B. Dorsett, St. Louis.
27. Unnecessary and Unnatural Fixation of the Uterus and its Results; James F. W. Ross, Toronto.
28. Sarcoma of the Urethra; Charles A. L. Reed, Cincinnati.
29. Appendicitis as a Complication in Suppurative Inflammation of the Uterine Appendages; Lewis S. McMurtry, Louisville.
30. Gunshot Wounds of the Abdomen with the New Gun; J. D. Griffith, Kansas City.



In Memoriam :

ROBERT BATTEY, M. D., LL. D.

See page 443.

THE
AMERICAN GYNÆCOLOGICAL
AND
OBSTETRICAL JOURNAL.

OCTOBER, 1896.

WOMAN AND HER DISEASES V/S. GYNÆCOLOGY.*

BY HENRY PARKER NEWMAN, A. M., M. D., CHICAGO, ILL.,
Professor of Clinical Gynæcology, College of Physicians and Surgeons; Professor of Gynæcology, Chicago Post-Graduate Medical School; Attending Surgeon, St. Elizabeth's Hospital; Gynæcologist, Chicago Post-Graduate and West Side Hospitals; Surgeon in Chief to Marion Sims Sanitarium;
Vice-President, Chicago Gynæcological Society, etc.

In nothing is the trend of modern progress more strongly indicated than in the well-nigh universal demand for the recognition of prophylaxis as a factor in all efforts for the betterment of vital conditions. Take, for an example, the programmes of the many conventions of medical societies now being held in different parts of the country, and compare them with those of a few years ago.

Then we had title after title relating to new operations and improvement in surgical technique. Often mechanical devices monopolized the attention of some of our best workers, and the atmosphere was rife with surgical activities and redolent of the fumes of newly discovered anæsthetics and antiseptics. The man with the feeble protest against radicalism was ingloriously sat upon and silenced, and with some reason; for without the hardy battling of our pioneers, and the unanimous and enthusiastic support of their followers, there could have been no such advance as we can boast in our knowledge of disease and its treatment. But now, as is usual after any season of great and prolonged activity, there is coming in a

* Read before the American Gynæcological Society, May 28, 1896.

period of transition. We have operations to answer all the ordinary demands of suffering humanity, and ample surgical armamentarium for their performance. What follows? Look at our present programmes and see. Instead of essays on treatment, we have now studies in prevention; instead of cures, prophylaxis; out of the entire number of papers appearing on the programme of this meeting of representative gynecologists nearly one third are devoted to the consideration of abstract subjects. This is a noteworthy showing for that branch of medicine which has not infrequently suffered the opprobrium of seeking financial emolument at the expense of Nature and humanity.

The Wisconsin State Medical Society is now devoting the entire proceedings of its fiftieth annual meeting—a very important anniversary, by the way—to preventive medicine. The sections keep their specialistic individuality as usual, but from start to finish the speakers treat of hygiene, sanitation, and prevention. This is not alone true of medicine. In secular science the study of sociology has taken first rank. Our popular and progressive universities have established departments of hygiene; and studies in biology, chemistry, and physiology are all linked with the wider interest in the new sanitation. Philanthropy is no longer content to dole out bread and clothing to the hungry and naked. She demands to know the causes of the pauper's decadence, and that those causes be eliminated from prevailing social conditions. She concedes that it is better to prevent evil than to do battle with its effects; that it is better to form a citizen than to reform him. And in this she has taken the cue from medicine, which has ever insisted that it is not only better but easier to prevent disease than to cope with its consequences; for there is no doubt that the accession of interest by intelligent people in this subject has been due to the influence of medical men. Notwithstanding the fact that the doctor sometimes ranks in public estimation with the plumber as a monument of greed, it is incontestably true that his best efforts are constantly given to the cause of public health and the elimination of those diseases which are supposed to be his bread and butter. But no reform ever came without self-sacrifice. The skilled mechanic who invents a labor-saving machine throws himself and his fellows out of work for a time, but he makes the race his debtor. So it is with the scientist in medicine. His constant study has been the betterment of humanity physically. For long this led him mainly to a

consideration of the elaborating and perfecting of modes of treatment until he seemed to have reached the highest plane attainable in therapeutics.

But, still unsatisfied and ambitious of more complete victory, he turns now to attack the enemy from another direction, as the Egyptians thought to exterminate the hosts of Israel, in the cradle. This is prophylaxis, and it is to our relation as gynæcologists to this science that I ask a few moments' consideration. I have called my paper *Woman and her Diseases vs. Gynæcology* not because I have any indictment to urge against this branch of medicine, but because I hoped thereby to emphasize one thought; and this, that in our devotion to the experimental and purely scientific side of our art, we must not forget that we are dealing not with cold facts or interesting phenomena in wood or stone, but with the highest of human interests. We must take part in the present crusade against prevailing evil conditions, and no mean part, but as conservators of health in women take front rank among social and sanitary reformers. None know so well the needs of woman as the profession who, for the better part of this century, have made the study of female anatomy and female disease, its ætiology, pathology, and treatment, the chief consideration, and to this profession should the public turn for enlightenment upon all that concerns woman's health. There is room for abundant effort in this field as in the field of mechanical experiment. The amount of ignorance of Nature's requirements displayed by the average woman, intelligent enough on other points, is appalling. Woman's sphere has widened of late, until now her outlook is as broad as man's. The few restrictions to her liberty which remain as reminders of her narrow sphere in the past will probably soon disappear, and all barriers to her future progress be removed. How is she meeting these new opportunities with their responsibilities? Entering the race with man, does she equip herself intelligently for the trial? Does she first make herself free as he of all that would hamper and impede? Do not look for an answer to our few higher educational centers, where co-education demands for girls the same routine and regimen of training as for boys. These are the exceptions. But look about you in the streets, in the offices, in the great commercial and social centers, and find the average woman. The stenographer sitting all day at her instrument, the saleswoman and workgirl standing through long hours at her nerve-exhausting occupation, the busi-

ness woman and the shopper, tramping up and down the hard, dirt-laden streets. Are not their bodies, upon whose well-being the success of all their efforts depends, outraged by compliance with the dictates of arbitrary fashion in food, dress, and habit? In the matter of dress no attention is paid to the original and normal contour of the female form. Fashion has set up an unnatural standard of beauty, and one must conform to it at any cost. Upon the compressed and constricted waist are hung heavy weights of the manufacturer's fabrics, cotton, silk, and woolen, dragging down and permanently injuring the viscera, which demand a delicate and uniform adjustment, *plus* motility. The chest and shoulders are run into molds curiously constructed of various materials—one day fur and the next some airy gauze—stiffened with whalebones to the utter immolation of the function of heart and lungs, stomach, liver, and other abdominal and pelvic viscera. The head, ears, neck, and throat go covered or uncovered, without regard to the suitability of the weather; and the problem of high heels or low, big hats or little bonnets, is settled by *L'Art de la Mode*, and not by the mandates of reason. The food is chosen with regard solely to the capricious appetite of the eater, and without any reference to the law of demand and supply, or the particular need of the individual organism. The constricted and dislocated stomach is filled with salads, confections, condiments, and iced or effervescent drinks *ad libitum*, and expected to do its whole duty of assimilation and nourishment. The nerves and vital powers are tried exceedingly from morning until night in responding to the demands of our modern artificial civilization, and then are denied that share of "tired Nature's sweet restorer" which the law of compensation ought to insure. In the education of the growing girl the conditions are no better. In the public schools girls are still plodding many times a day up and down long flights of stairs, the nearer the critical stage of maturity the more stairs to mount. At this period, when Nature is supremely concerned with the development of the generative organs, in our public schools and workshops girls of twelve to sixteen years of age are still housed up in overcrowded, ill-ventilated apartments, sustaining the working hours of the day upon food into which little of real nutritive value enters, when they should be breathing free draughts of vitalizing oxygen, exercising their growing muscles in unobstructed sunshine, and eating food rich in nutritive and assimilable qualities.

Who shall insist upon a better school *régimé* for the period of puberty if we who know how many evils result from the present faulty environments do not? This is where again we should remember that the "ology" is not the whole of our specialty. We know all about the pelvic organs of women; we can teach our students how to cope with serious conditions, to treat grave lesions, and to do brilliant operations; but woman must be more than the material upon which to exploit skill in perfecting radical and often mutilating operations. Our interest in her constitution must not be centered alone in its pathology, but must extend to the developmental period when evil influences exist to determine later suffering and disease.

There has been an indication in some quarters, which we can not but deprecate as leading away from the broad and dignified position which ought to be occupied by the professor of diseases of women, to a narrowing of his opportunities and a belittling of the esteem in which he aims to be held. This is a tendency among certain gynécologists to affiliation with surgery and a severing of the old connection with obstetrics and pædiatrics. This ought not to be, and, in fact, such a union of interests can not be effectively consummated. To accentuate the surgical significance of gynécology is to give countenance to a belief already too widely credited that woman's generative organs are doomed when once she has consulted a specialist. And while it seems plausible that a man who has given his entire time to surgery and mechanical technique should be better qualified to perform a capital operation of any nature, this is not strictly true in pelvic and gynécological surgery. Nothing but long training and every-day experience in the pelvic cavity can qualify the operator to meet its problems, and the surgeon and diagnostician must be one and the same, so often the diagnosis can not be complete or procedure fully determined until the operation is well under way.

And to be a good diagnostician in the diseases of women one must know as much about women as about disease; as much about environment and social and domestic condition as about pelvic lesions; as much about causes as results. Therefore the affinity of our specialty is naturally with obstetrics and pædiatrics, since with the exception of extremely rare congenital malformations, specific infections, and unusual traumatisms, nearly all gynécological diseases have their origin in the physical errors of childhood and

puberty and the accidents or mismanagements of pregnancy, labor, and the puerperium. It remains for the gynæcologist to co-operate with the pædiatrician, with the general practitioner, with the family, and with the public in bringing about an improvement in the environment of our girls from the cradle up.

I am convinced we have but to take the initiative to receive the hearty indorsement of these others.

Not until the ophthalmologists boldly invaded the schools with their demands were the young eyes of this nation rescued from the evils of the old system of lighting, and all reforms in heating and ventilation that have been developed out of public interest in these matters have originated with specialists.

In view of these facts, then, we can well spare a little time from the work of advancing the concrete advantages of the specialty—those things we are most prone to think of as gynæcology, the details of treatment, medical, mechanical, and surgical—and join issues with the general symposium on prophylaxis, and do not less brilliant work in forwarding the abstract good of humanity as it is bound up in the welfare of woman.

To express these random thoughts more tersely, I would offer this summary:

1. As gynæcologists we must recognize and exercise the rising interest in a medical science which shall be preventive rather than curative.
2. Our affiliations should be with the general practitioner and obstetrician rather than with the specialist in surgery, who often lacks the special training necessary to an appreciation of the many disease-manifestations in woman, their ætiology and prophylaxis.
3. As we have long made a study of the pathology and ætiology of women's diseases, and as we know that whatever may be acquired can be prevented, our specialists are best qualified to lead in the movement for the reform of all conditions detrimental to the health of modern women.
4. To repeat, my title is not in any way an indictment against our great division of the science of medicine, but an attempt to bring forward the claim of the living human interests of woman's life in all its issues as opposed to a colder, more purely scientific, and more mechanical interest in the pathology of the female pelvic organs.

34 WASHINGTON STREET.

PUERPERAL ECLAMPSIA.*

BY WILLIAM M. CATTO, M. D., DECATUR, ILL.

The **grave** importance of the malady, the difference of opinion existing **as** to the best method of treatment, and the necessity for prompt **and** intelligent action when it is encountered must be my excuse **for** bringing before the members of this Society a subject about **which** so much has been written.

I **desire** to introduce for discussion a short *résumé* of our present knowledge of the disease and its treatment, to the end that the best means **may** be arrived at for its proper management; for I am firmly convinced that the mortality has been, and still is, much greater than it should be.

Puerperal eclampsia proper is a complication arising either before, during, or shortly after parturition, in which the faculties are **suspended**, and is characterized by a series of convulsive fits of an **epileptoid** character, separated by an interval of varied duration, **and** the convulsion is almost, if not always, preceded, accompanied, or followed by an albuminous condition of the urine of greater or less intensity; it may terminate either in complete recovery, in death during the convulsion, or from exhaustion, or in incomplete recovery, when the patient has chronic nephritis or puerperal mania. It is an affection which occurs with comparative infrequency, yet often enough that any of us may meet it in our next labor case; and there is perhaps no disease in which early and full recognition of the premonitory symptoms is of greater importance, or any requiring more prompt, vigorous, and persistent treatment, coupled with the knowledge of when to stop treatment and let Nature do her share.

Statistics differ widely as to the frequency of eclampsia. Charpentier claims that it happens once in 354 confinements; Martin and Schröder once in 500; Parvin and Vinay once in 250; Avaurd once in 333. The late Dr. Earl, of Chicago, saw seventeen cases in 1,700 labors; and in the past thirteen years I have seen twelve cases

* Read before the Mitchell District Medical Society, Shelbyville, Indiana, June 30, 1896.

of puerperal eclampsia, or about one in 103 confinements. The fact seems to be that it varies in frequency in different localities and at different times. As to the term of pregnancy, it may occur any time after the third or fourth month, although it is much more often met with during the later months, and most often near the time of the expected confinement. In order of frequency, during, before, and after parturition.

In the cases I have seen the order of frequency was before, during, and after—viz., six before, four during, and two following parturition. Of those occurring before, one at four months, two at seven, two at eight, two in the ninth month, and five at full term. Seven in primiparæ, five in multiparæ.

Opinions differ as to the cause of eclampsia. Some claim that it is due to retention of urea in the blood. Others that it is due to cerebral anæmia; others to cerebral congestion. Santos, in the *Archives of Gynecology*, records fifty-three cases, and concludes that it is due to reflex irritation of the sympathetic and renal nerves, caused by increasing distention of the uterus, and regards the convulsions as acute puerpural epilepsy whose generic zone is the uterus. Upon this theory he explains the action of narcotics, and some cases of eclampsia without albuminous urine.

Scalini and Blanc claim to have isolated from the blood and urine of eclamptic patients a rod-shaped bacillus, cultures from which inoculated into gravid bitches at the end of gestation produced convulsions. The convulsions themselves are of the same character as those seen in uræmic poisoning, and probably have a similar origin. That it is not at all times due either to cerebral anæmia or congestion is certain; we have all seen cases in which exactly opposite circulatory conditions exist, owing largely to the type of patient.

Regarding the symptomatology little need be said here, although the recognition of the precursory symptoms is all-important. The most prominent of these are headache resisting treatment, and more than ordinary swelling of the limbs or body, nausea and irritability, and especially impairment of vision, with slow, hard, and incompressible pulse; if with the above there is a chill, the fit is not far off.

The sight of a genuine eclamptic seizure is not easily forgotten, and once seen will certainly not be mistaken for anything else. The convulsions begin in the small muscles of the face; the angles of

the mouth and eyelids twitch, the eyes roll, nostrils dilate, the mouth partly open and distorted. Next the muscles of the neck become involved, then those of the arms and forearms; the fingers contract, and the thumb is bent into the palm or thrust between the fingers; this first convulsive stage may last from one to three minutes, when the second stage begins. The twitching of the facial muscles ceases, the eyes become fixed and staring, the tongue is thrust between the teeth, the limbs become rigid, the chest fixed, the respiration abdominal, and she looks as if she would die in three seconds. When the muscles begin to relax the tonic spasms subside, to be followed by those of a clonic character; the countenance becomes more natural, the head rolls from side to side, respiration is quick and imperfect; face becomes congested, swollen, and livid; pulse full, hard, and incompressible. She froths at the mouth, and there may be involuntary evacuation of the stomach, bowels, and bladder.

The number of remedies advocated in the treatment of this disease goes but to show the unsettled state of professional opinion as to the best method of its management.

The only treatment to be considered for a moment as truly curative may be summed up in the one word "elimination," and that by every available channel, and as rapidly as possible. This consists in order of importance in bleeding, catharsis, diaphoresis, and diuresis. All other forms of treatment are only useful in so far as they may serve to gain time, and allow Nature to effect a cure; but if used to the exclusion of the above, are improper and injurious. Dependence on the use of chloral, bromide, chloroform, and morphine is to be condemned; they stupefy the patient, and lull the physician into fancied security at a time when delay in resorting to more radical measures may amount to the loss of the mother or child, or both.

I submit a brief history of twelve cases of eclampsia, two of which were fatal, and I am convinced that one was lost from too little treatment and the second from too much interference, and that every case should have recovered.

CASE I.—Mrs. J. F., multipara, aged thirty-six years, fifth gestation; eighth month complained of intense headache, swelling of the limbs, difficulty of vision; symptoms were not properly interpreted; she was given bromides, bowels slightly relaxed, and quiet enjoined. Two weeks later was suddenly seized with violent con-

vulsions. I arrived fifteen minutes later and found labor just beginning; she was bled timidly, about a pint of blood being slowly drawn, and chloroform was used to complete anæsthesia; ergot given hypodermically, and manual dilatation employed. Labor progressed steadily, and six hours after my arrival I applied the forceps and delivered a living child. The convulsions, however, continued with scarcely any intermission; large doses of chloral were given by rectum, and hypodermic injections of morphine were used, but without avail. The patient died seven hours after delivery. This woman was strong, healthy, and full-blooded, and if three or four quarts of blood had been quickly drawn I believe she would have recovered.

CASE II.—Mrs. G., aged twenty-nine years, primipara; married six years. Had previously treated her for antelexion; about the eighth month of gestation was called to see her; found her complaining of headache, nausea, dizziness, and dullness of vision, the face and limbs swollen, and the urine loaded with albumin. Ordered free catharsis and gave a diuretic; was called next morning, and found her just recovering from a severe convulsion, which was soon followed by another. She was immediately bled until the lips became pale and the pulse fluttered, then given tablespoonful doses of salts and cream of tartar every two hours; there being no sign of labor, ergot was given every hour until the pains became regular and severe, then withheld; I punctured the membranes and dilated the os as rapidly as possible, and, although the patient remained in a semiconscious condition, she was delivered in about fourteen hours of a living child weighing two pounds and a half, which lived five months. The mother made a good recovery.

CASE III.—Mrs. J. F., aged twenty-six years, fourth pregnancy. Had chorea for six months before, and two years after the birth of her first child, but made a good recovery, and subsequently bore two healthy children at intervals of about two years. Her husband said she had just had a "fainting spell"; I found her suffering from general anasarca, shortness of breathing, difficulty in swallowing, ringing in the ears, dimness of vision, with strong tendency to stupor; she was very pale, the bowels constipated, the urine scanty, high-colored, and loaded with albumin; she was given Epsom salts and cream of tartar in tablespoonful doses every two hours; ordered hot baths twice daily, and jaborandi to promote sweating. This treatment was continued two weeks, when labor began and

progressed naturally, lasting four hours; the child was stillborn. The patient had a slow convalescence; chronic nephritis supervened, from which she died two years later.

CASE IV.—Mrs. F. R., aged twenty-eight years; married six years, first pregnancy; in the sixth month was taken with a violent convulsion, lasting some minutes, followed by others in quick succession. I found her unconscious and the breathing stertorous, pupils dilated, face flushed, pulse full and bounding. Immediately bled her until the respiration became sighing in character and the face pale. The convulsion ceased and consciousness returned; I ordered elaterium, salts and cream of tartar, and hot baths. The urine, which was highly albuminous, began to clear, and increased in quantity, the swelling subsided, and in a few days the patient was able to go about; she was ordered to continue the treatment, but failed to do so, and four weeks later was seized with a convulsion while sitting in a chair. She was again bled and the fit ceased; cathartics of the same kind were pushed to free depletion, and half-drachm doses of ergot given every two hours until pains became regular. The patient was delivered in six hours after labor began. The child was dead. There were no more convulsions, and the mother made an excellent recovery.

CASE V occurred in the same woman two years later at the same month of gestation, and was a repetition of the former condition. The same treatment was used; the child stillborn; patient recovered.

CASE VI.—Mrs. N., aged twenty-nine years, primipara at eight months and a half. I was called to a neighboring town by the physician in attendance; patient had twelve convulsions before my arrival, following one another in quick succession; she was strong, robust, and full-blooded; we at once bled her freely, when convulsions ceased and consciousness returned; labor had begun, but, instead of waiting, the womb was rapidly dilated instrumentally, and the child delivered with forceps; the child was dead, and four hours later the woman died from the shock. This patient was lost through the manner of her delivery. Depletion should have been continued, and labor allowed to progress naturally.

CASE VII was seen in consultation: Mrs. F. H., aged thirty-four years, mother of four children; all previous labors natural and easy; was delivered of a living child in the evening after a natural labor, but next day at noon was seized with convulsions. The

doctor in attendance administered chloroform, and used morphine by hypodermic injection; these remedies not controlling the fits, she was bled freely, when she became quiet and slept several hours, but on awakening again went into convulsions; on my arrival, the patient being unable to swallow, and the bowels having acted but once since her delivery, we gave croton oil under the tongue, which was followed by free purging; when consciousness returned, Epsom salts was given; improvement followed, but in eighteen hours she had another convulsion; bleeding was again resorted to and catharsis kept up, and patient made a good recovery.

CASE VIII.—Mrs. F. R., aged twenty-three years, primipara. I was called to see this patient about the middle of the seventh month, she having become alarmed at not feeling motion for some time. I was impressed with her appearance upon seeing her. The lips were dark, her breathing hard and labored, the face puffed, and skin pasty; upon examination, I could detect the sound of the foetal heart; after reassuring her on this point, I found upon inquiry that the general condition just mentioned had been present in some degree for two weeks; she was totally unable to see with the left eye, and vision was becoming impaired in the right one; upon examination of the urine, I found it was loaded with albumin, so that it was with difficulty that I could pour it from the test tube. She was at once given a hot vapor bath of twenty minutes' duration, which was repeated daily, followed by free perspiration; she was given abundance of milk and hot water, and solid food withheld. One fourth grain of elaterium was given every three hours, until the bowels acted four to six times a day; she was also given tablespoonful doses of cream of tartar twice daily. Upon this treatment the swelling diminished and headache disappeared, vision in the right eye improved, and she slept better. This treatment was continued without interruption for three weeks, when labor began, and, though slow and tedious, there were no convulsions; she was delivered in twelve hours of a living child, greatly emaciated and very feeble, weighing three pounds and a half. The child lived, and the mother made a good recovery, although the left eye remained blind for several weeks, when sight began gradually to return.

CASE IX.—Mrs. A. C., aged twenty-four, primipara. Seized at beginning of labor with convulsions: saw her in half an hour. She was bled freely, when consciousness returned; she was delivered in

four hours instrumentally. The child was dead. The mother made a slow recovery. No albumin was found in the urine.

CASE X.—Mrs. H. P., aged nineteen years, primipara; was called in consultation with her physician, she having been seized with convulsions at the fourth month of pregnancy. The urine was highly albuminous; she was bled freely, and the same eliminating remedies used as in the former cases. She aborted two days later and made a good recovery; has had two living children since that with no return of eclampsia.

CASE XI.—Mrs. D. C., aged thirty-four years, multipara; had been delivered of a healthy child the day previous by her attending physician; four hours later she was seized with violent convulsions, following one another in rapid succession. Consultation was called; the attending physician wished to bleed, and the consultant opposed it; chloral, chloroform, and morphine were freely used, but without effect; I saw her eighteen hours after the delivery, when she had had thirty-six convulsions; countenance was livid, breathing stertorous, pulse bounding and incompressible, and wholly unconscious; she was at once bled until she gasped for breath; then croton oil was administered under the tongue, followed by elaterium, when she became able to swallow. She made a rapid and perfect recovery.

CASE XII was also seen in consultation. Mrs. S., aged nineteen years, primipara. Her physician was called at 8 A. M. Sunday morning, and between that time and 11 A. M., when I arrived, she had six convulsions; her face was blue and lips black, carotids throbbing; she was unconscious, and looked as if she had been strangled. We took from this patient the greatest quantity of blood I have ever seen taken at one time—an ordinary white earthen wash basin brimming full—not less than a gallon. This was followed by croton oil, and later by elaterium and salts. She had but one convulsion after bleeding. Free depletion was persisted in, labor ceased in, and forty-eight hours later she was delivered, the child being dead and macerated. The mother fully recovered.

To sum up: Of the twelve cases given above, seven were primiparæ, five had borne children, six children were born living, five dead at or near term, and one aborted. Two women died from lack of proper treatment; the other ten recovered, although one died in two years from nephritis.

The question of bleeding in eclampsia has been discussed *pro* and *con* from year to year, and I am firmly convinced that where it

is practiced freely and fearlessly we find a greater number of recoveries than from any other single line of treatment. I have never seen a case where it was inapplicable.

Dr. J. S. Clark, of Chicago, reports (September 7, 1891, Chicago Medical Society) that he had seen in the course of his practice a dozen cases. Seven of these, occurring consecutively, were bled without a death; of the five others treated by other means, only one recovered.

Dr. J. T. McShane, of Indianapolis, recently reported eleven cases with but one death. Dr. Reamy, of Cincinnati, and Dr. Fearn, of Brooklyn, ably advocate the use of *veratrum viride*, a treatment which is rational and in harmony with the view taken in this paper, as it is another form of depletion, or bleeding, if you please, the blood being diverted from the brain, until such time as Nature can relieve the poisoned condition through other channels; but I have noticed that the time necessary for the cessation of the convulsions is usually greater than when direct bleeding is practiced.

As to the propriety of inducing premature labor, it would seem to be a safe rule to adopt that so long as the patient has not actually had an eclamptic seizure; we may confine our efforts to an attempt to restore normal conditions and allow gestation to go on; but when she has once had a fit, she is never safe a minute, and the sooner the uterus can be safely emptied of its contents the better.

To sum up the treatment in a few words: First, bleed freely and fearlessly until the face becomes pale and the breathing quiet; second, resort to cathartics, diuresis, and diaphoresis; third, deliver as rapidly as is compatible with safety.

I am satisfied that, if this line of treatment were generally adopted and properly carried out, the mortality of puerperal eclampsia, instead of being from thirty to fifty per cent., would fall below five per cent.

PHLEGMASIA DOLENS.*

BY A. D. WILKINSON, M. D., LINCOLN, NEB.

There is scarcely a condition in the life of woman which approaches nearer the boundary between health and disease than that of childbed, and no process shows more clearly the absence of well-defined lines separating physiology from pathology; yet, however easy and healthy the pregnancy and delivery may have been, however happily they may have run their course, every lying-in woman is in a high degree predisposed to puerperal affections. We propose in this paper to discuss one of the not very infrequent diseases affecting the puerperal state.

Definition.—Phlegmasia alba dolens is a painful swelling of the lower limbs in lying-in women, without redness.

Synonyms.—There are many synonyms: Swelling of the thighs and legs of women in childbed; milk engorgement; œdema of lying-in women; ischial milk abscess; puerperal and milk abscess; hydrophlogosis of lying-in women; hydrophlegmasia of the cellular tissue of the lower limbs; phlegmasia and leucophlegmasia; crural phlebitis; thrombotic puerperal fever; venous thrombosis of the thighs; phlebitis; milk-leg; œdema dolens; œdema lacteum; *dépôt du lait*; metastasis lactis; phlebitis cruralis *in puerpero*; and œdema of newly delivered women, etc. Phlegmasia dolens is by no means confined to puerperal women, nor indeed to females. It has been frequently met with in women consequent on the sudden suppression of the menstrual secretions; also accompanying malignant diseases of the womb. In the male it has been known to attend on dysentery; to follow diarrhœa, when ulceration of the intestines and disease in the hæmorrhoidal veins existed; to supervene on cancer of the rectum. It has also originated in external injuries: a blow on the shin has produced it; it has followed ulceration of the leg; operations—especially on the veins—and local exposure of the limb to cold. Mr. Trye, of Gloucester, claims he has seen it follow retention of urine and inflammation of the bladder; laceration

* Read before the Nebraska State Medical Society, at Lincoln, Neb., May 21, 1896.

tion of the perinæum and vaginal tract are frequent causes. Ramsbotham saw it follow a scirrhus prostate and diseased bladder. Diaz, of Madrid, reports a case of double phlegmasia dolens following childbirth during intestinal auto-infection, continuing through the puerperium. The anæmic condition of a patient after delivery, with placenta prævia, renders her liable to phlegmasia dolens.

Frequency.—Obstetricians are at such variance as to the frequency of the disease that one must be content to merely mention the opinions of a few. Some consider it of quite frequent occurrence, and others, of equal authority and experience, claim it is very rare:

Hugenberger.....	14	times	among	8,036	puerpera.
White	4	"	"	8,000	"
Bland	5	"	"	1,897	"
Wyer.....	5	"	"	989	"
D'Outrepoint	3	"	"	518	"
Busch.....(1)	5	"	"	2,056	"
Busch.....(2)	1	"	"	4,124	"
Winckel.....	7	"	"	1,900	"

Lee collected twenty-eight in six years' practice; Robert de la Tour collected four times in thirty-six years' practice; Hevveau collected six times in twelve years' practice at maternity; Hagner collected two times during eighteen years' practice; Wilkinson collected two times during fourteen years' practice. I think the calculation of Sankey that once in two hundred cases is much too high; doubtless it may sometimes occur in the form of an epidemic, or it may follow the wake of certain epidemics, but only under these circumstances would it approach such figures.

Time of Appearance.—This disease usually makes its appearance from about the fourth to the eighteenth day after delivery. It may appear earlier or later, for White, of Manchester, has seen it as early as twenty-four hours after delivery, and another as late as five weeks; and Levret remarks that it has been observed to take place upon the child being weaned—beyond the close of the year; it is claimed that Levret, however, had a theory to support by reporting this case, and it is not impossible that his zeal might have betrayed him into error. A case in my practice—a multipara—made its appearance in the sixth or seventh week after delivery in the left lower extremity, followed five weeks later in the other leg.

Symptoms.—The prominent symptoms of this disease can be described in two forms, one being with very little disturbance of the health, the other very grave; the latter is infectious in its nature, the œdema coming on with great rapidity, preceded by violent chills; temperature, both local and general, greatly elevated. Areas of erysipelas soon appear. Symptoms of deep abscess are present—in fact, the general symptoms are pronounced; milk and lochia are suppressed; pyæmia supervenes, and death closes the scene. This septic form is rarely encountered in these days of clean work in the lying-in chamber. The initial symptom of the simpler variety may be a chill, followed by some reaction, with a sensation of heaviness of the limb and a dull pain, increased by motion. The tongue is usually moist, somewhat coated, face pale, countenance anxious, and a great tendency to frequent and profuse perspiration. Lactation is much impaired, sometimes wholly arrested; yet the first symptom may be simply a pain in either the calf of the leg, popliteal space, the thigh, along the tract of the femoral vein or its principal branches; this is preceded for a day or two by a feeling of great lassitude and depression. As the disease progresses the tenderness becomes extreme; pain is increased by pressure and by movements of the affected limb, which is sometimes impossible for the patient. Both legs may become affected, but never in the two simultaneously; the interval between the attacks of the two legs, however, may be very short indeed, but never in the same day. The left leg is attacked most frequently, possibly in the proportion of three to one. The authors have suggested various explanations for this fact. The most plausible one of these theories is that of the position of the rectum on the left side, which must necessarily excite more or less pressure on the veins of that side; another is the arrangement of the arterial and venous trunks at the promontory of the sacrum, where the primitive iliac vein is crossed almost transversely by the right common iliac artery. It has been found in autopsical examinations that where the iliac vein contains a clot a very marked depression is observed in the clot at the point where the artery crosses the vein. Mr. White appears to attribute this peculiar feature of the disease to the position of the body in labor. Ramsbotham to the different distribution of the right and left spermatic vein, the right terminating in the vena cava, the left in the renal. Spiegelberg gives as a possible cause, the left limb is more often varicose.

Swelling.—The onset of the pain is soon followed by swelling of the limb, either being general or progressive from below upward or from above downward. This swelling of the parts affected is constant, and one of the most prominent features of the disease; indeed, it is uncertain at times to say whether the swelling and pain have appeared simultaneously or the swelling preceded that of the most characteristic pain. Puzos, Levret, White, Gordieu, and others assert that the swelling begins at the upper part of the leg and gradually descends toward the foot. Trousseau declares that he has never seen the swelling progress in this direction, but that it always begins at the lower extremity and ascends toward the pelvis. Barker, Spiegelberg, and Bouchet say that neither assertion is absolutely true, but that in some cases the swelling begins below and advances upward, while in other cases the reverse occurs. Barker relates a case where the swelling was very great, but confined entirely to the thigh, and at all times during the course of the disease a shoe of the same size could be put on either foot. The swelling is generally very considerable, sometimes doubling the size of the limb. The skin is white, glistening, and so elastic that most authors have asserted that the swelling does not pit upon pressure; but Fordyce Barker says this is true if the finger be pressed on the swollen parts for only a moment, which would leave the pit in ordinary œdema; yet he has demonstrated at the bedside that if the pressure be made with some force, and prolonged for a minute or two, the pitting is then manifest, as in œdema. Loss of all muscular power of the limb is another characteristic of this affection. In some it is not only impossible to move the thigh or the leg, but also to flex or extend the toes. You may or may not have hard, knotty, painful cords traced along the course of the crural vein or its branches. There is a great discrepancy of statement as regards the temperature of the affected limb. Valleix, Graves, and Simpson assert that there is an increase of temperature where the swelling exists. Trousseau denies the presence of the temperature in the part affected. Barker is of the same opinion. Spiegelberg modifies this somewhat by claiming that where the œdema develops slowly the temperature of the limb is not raised; a rise only accompanies a rapidly developing and marked œdema, disappearing soon in uncomplicated cases.

Progress and Duration.—The disease is one that develops rapidly, but further progress is slow. The swelling rarely remains tense for

more than five to ten days, but the doughy œdema may continue for some weeks, and in a slight form may last still longer. The pain seems to disappear with the hardness, and, if nothing remains but the œdema, pain may be entirely absent and patient feel quite well. The mobility of the thigh increases in the degree in which the tension and pain subside. In some rare cases superficial or deep-seated suppuration may take place. Occasionally the swelling has been seen to pass into hypertrophy of the skin and of the subcutaneous tissue, as in the remarkable case of Sarah Rogers, reported by Thomas Chevalier, an illustration of which can be seen in Busey's work on *Lymph Channels*. Recovery is the most common termination of the disease. It may be complete, yet one is not exempt from the affection in future or subsequent labors.

Complications.—The complications can be summed up as pulmonary embolism, gangrene, erysipelas, purulent infections, and lymphangitis.

Pathological Anatomy.—It has been found that in the simple forms, when an opportunity for an autopsy presented itself, the affected limb revealed these conditions: The skin is always thickened; the connective tissue is sometimes found indurated, vascular, infiltrated with serum and lymph; the veins are generally obstructed by clots and inflamed. In the first stage clots alone are formed, and there is no inflammation of the coats of the vessels. In more advanced cases the coats of the veins are thickened and abnormally vascular; the external coat adheres to the surrounding connective tissue; the internal coat is reddened, often studded with fibrinous deposit. The obstructive coagula may now be softened to a pultaceous mass, often regarded as pus, but which is really the result of fatty disintegration.

The veins principally affected are the femorals and iliacs, less frequently the uterine, vaginal, and saphenous. The lymphatics are often enlarged, matted together by condensed connective tissue. The glands are generally enlarged and vascular. The cellular sheath of the arteries is infiltrated; all the vessels are agglutinated by inflammatory lymph. In the cases in which the septic character predominates the changes are more general and more distinctive. The clots in the veins are more disintegrated, the presence of pus is more decided in them, suppuration is common in the perivascular connective tissue, and the muscular fibers are softened. Peritonitis and metritis are common. Ovaries, tubes, and broad ligaments are

inflamed. The kidneys, liver, and spleen are congested, and you may find pulmonary pleuritis, even hepatization of the lungs and pericarditis.

Pathology.—The pathology of phlegmasia dolens has given rise to much controversy, which has served to develop numerous specious theories. There was an attempt by R. J. Lee to establish a connection between erysipelas and phlegmasia, claiming that the opinion entertained by some that the clotting of blood in the veins as a cause is erroneous. Mauriceau attributes it to a reflux determined to the lower extremities of humors, which ought to be evacuated by the lochia. Mesnard advanced the same theory, while Puzos and Levret a little later thought it a metastasis of milk. White and Trye, in the latter part of the eighteenth century, ascribed the cause to an obstruction of the lymphatics and effusion of lymph; and a Dublin doctor, in the *London Lancet* for 1883, claims that the lymphatic gland in the crural canal forms a lost important link between the lymphatics of the trunk and lower extremities, that the absorption of septic matter takes place from the system by the lymphatics of the pelvis. The germs thus absorbed set up an inflammation, and inflammation produces hypertrophy. Hull, in 1800, criticised all these (except the latter), and offered the theory of an inflammatory affection, producing suddenly a considerable effusion of serum and coagulable lymph from the exhalants into the cellular membranes of the limb; that the seat of inflammation was in the muscles, cellular membrane, and inferior surface of the cutis. In some cases he thought the inflammation might be communicated from those parts to the large blood-vessels, nerves, and lymphatic vessels and glands imbedded in them. Tilbury Fox says it is a local disease. No general symptoms need be present, and that phlebitis can not give rise to phlegmasia dolens, but to oedema. He says it might occur in phlebitis, but forms no necessary part of it, that the obstruction of the main lymphatic channels alone is capable of giving rise to white-leg. Albers, of Germany, thought it to be neuralgia, causing oedema; Burns, an inflammation of nerves and veins. The first great step made in advancing the knowledge of this disease from speculative theories to the domain of pathological science was by Dr. Davis, of London, in 1823, when he published his discovery that in several instances he had found, in making post-mortem examinations of the disease, that the femoral and iliac veins were impermeable from being filled

with **firm** coagula of blood, which was very soon after confirmed by Bouillard and Velpeau, of Paris; in fact, some tables reverse the **matter**, and give Bouillard priority over Davis; from this **discovery** resulted the doctrine of crural phlebitis. Six years later Dr. Lee, of London, believed he had made a great discovery, maintaining that the disease is primarily a uterine phlebitis, commencing with the uterine branches of the hypogastric veins, and subsequently propagated to the iliac and femoral of the affected limb. The knowledge that this disease is not confined to the puerperal state or to the female sex was a great step in elucidating its pathology. The next step was made by the hæmatologists Andral, Gavarret, Becquerel, and Rodier, who demonstrated the existence of a peculiar modification of the blood in the cachexias, and that this modification often exists in pregnancy. There is a change in the proportion of the elements of the blood. There is an excess in the amount of fibrin and serum and a deficiency of the blood-corpuscles; as compared with the normal state, there is a special predisposition to coagulation. Vogel calls this abnormal tendency to coagulation of the blood inopexia, and it is known, says Barker, that whenever phlegmasia dolens occurs, whether in the puerperal period or in association of other diseases, there is inopexia. Virchow, in 1846, to Barnes, in 1865, thought it due to thrombosis of the iliac and crural veins; afterward the great Moxon, of Great Britain, gave us the theory of coagulation of blood in veins, secondary to a phlebitis, which is excited by noxious material absorbed from the uterine surface. Barnes says phlegmasia dolens, like perimetritis, is a variety of puerperal fever. It is a toxæmic disorder. They arise in similar conditions, and it may be held that at the moments of invasion it is uncertain what form the disease may assume; accidental conditions, not clearly defined, may determine the evolution into perimetritis, phlegmasia dolens, or general septicæmia. From the various views from Mauriceau to the present time we are compelled to conclude that the advances in pathology have not shed much light on this disease. Many things in common are advocated and maintained—the doctrines of phlebitis, venous thrombosis, and inflammation and obstruction of the lymphatics; some hold that phlebitis is the essential lesion, some to peripheral thrombosis, others to the obstruction of the lymphatic ducts and venous thrombosis combined, and it is very difficult indeed to always strictly distinguish ætiologically. The lying-in state is exceedingly favorable

to the coagulation of blood in the veins of the pelvis and thighs, the thrombi growing into the iliac and onward into the femoral and its branches. The starting point of the thrombosis is the placental surface of the uterus, and is most apt to occur when, through imperfect contraction of the uterus, the veins are left with gaping mouths. It may be a question whether the introduction of septic material induces the coagulation; but, in the usual absence of the general symptoms of septic poisoning, it may be doubted whether this has to do at least with the extent of the coagulation. This thrombosis of the veins induces a chronic inflammation of its wall, and we have a phlebitis secondary to the thrombosis. In other cases the process takes an inverse course, the inflammation of the connective tissue leading to the phlebitis and thrombosis; we find in either event a considerable adhesion of the vein to its sheath, and from the sheath to the parts around. The lymphatic vessels may be affected by this adhesion and partially obstructed.

Diagnosis.—The diagnosis of phlegmasia dolens is very readily arrived at from symptoms mentioned in this paper. We have the sudden onset of the pain and swelling, and the absence of the grave symptoms which usually accompany lymphangitis, erysipelas, and septicæmia.

Prognosis.—In uncomplicated cases recovery is the rule; in complicated ones it is regarded as a very serious affection. Sudden death from pulmonary embolic obstruction is among the possibilities. One should be reserved in his prognostications.

Treatment.—Absolute rest, with the leg slightly elevated, bandaging the affected extremity, and administering an abundance of easily digested food. Stimulants, such as carbonate of ammonia, and counter-irritation by iodine over the course of the affected vessels, are useful, in particular where the lymphatics markedly participate in the affection. Attend to constipation if it exists. If circumscribed abscesses present themselves, they should be opened and dressed antiseptically, and, in cases of diffuse subfacial phlegmon, make several long incisions to limit destruction of the deeper parts.

28 BURR BLOCK.

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DELIVERY AT TERM AFTER TEN PREVIOUS CONSECUTIVE ABORTIONS.

BY C. D. SPIVAK, M. D.,

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Medical Department, University of Denver.

Mrs. R. Ed—n, Russian, aged twenty-eight years, healthy, fair-looking, has had the usual diseases of childhood, except scarlet fever. Has not had typhoid fever, no lung, liver, or kidney trouble, acute or chronic; no convulsive diseases. Digestion good, bowels regular. Puberty at fourteen years of age; menstruation regular, painless before and after marriage. Never had any uterine trouble.

Father and mother healthy. Three brothers and one sister living and in good health. Mother has had eleven children, of whom six died in infancy; never aborted. The husband is thirty-three years old, healthy and strong, never had any serious illness in his life; denies ever having had any venereal disease. From his first marriage he had one child, a boy of eleven years, in good health. His deceased wife was the sister of the present Mrs. Ed—n.

I. Mrs. Ed—n became pregnant soon after her marriage, which took place when she was eighteen years old, ten years ago, and in her sixth month she aborted a "rotten baby," a girl. She did not feel any foetal movements, and during the last two months of her pregnancy had suffered from severe headache.

II. Six weeks after the abortion she again became pregnant, and aborted at six weeks.

III. Three months after the last abortion she again became pregnant, and aborted a boy in the eighth month. She felt foetal movements until within three days before the expulsion of the dead child.

IV. Three months after the last abortion her uterus was cu-retted, and in another three months became pregnant and aborted a boy in the sixth month of gestation.

V. After a vacation of three months she again became pregnant. When in her third month of pregnancy, Professor Rein and Dr. Perlin, of Kief, advised rest in bed, which she did until her sixth month, and then aborted a girl. Both husband and wife underwent willingly a regular syphilitic treatment by mercurial inunctions, notwithstanding the fact that they both have been examined by a specialist in skin diseases, who found no traces of lues.

VI. After a respite of seven months she again became pregnant, and aborted a boy in the sixth month; the last three months she remained in bed constantly.

The above six abortions occurred while the patient lived in Russia, and the history of each pregnancy was related to me by the parents, who are exceptionally intelligent and honest people. The following four abortions and one delivery at term were under my immediate and constant observation:

VII. After an intermission of five months patient became pregnant, and I was consulted in the third month of gestation. The gravid uterus was in normal position and the patient was in perfect health, but very much worried about the impending abortion, which

she was sure would sooner or later come. I kept her on viburnum prunifolium for one month, and, seeing no indication for giving any treatment at all, I dropped it. When in her fifth month, she suddenly noticed a bloody discharge from the uterus, pain in her back, and this was a signal for her to go to bed. The foetus—a girl—and placenta came away in about twenty-four hours. She recovered quickly, as she did in all her previous abortions, and got out of bed in eight days.

VIII. After an interval of only two months she again became pregnant, and when in the beginning of her third month I had her rest in bed, where she remained until the sixth month, and abortion—a boy—followed almost in the same manner as the one preceding. The placenta was found to be filled with calcareous deposits.

IX. Thinking that perhaps frequent coitus might be the cause of this "habitual abortion," as it is conveniently called, I forbade intercourse for the first three months, fearing that a longer period of abstinence might not be obeyed. She found herself a mother after the allotted time, and aborted a boy in the beginning of the seventh month. For one week previous to the abortion the amniotic fluid began to escape in large quantities. Foetal movements gradually ceased about two weeks before the abortion.

X. This time I took courage, and forbade intercourse for four months, which I have reason to think was obeyed. When in her fifth month of pregnancy, I took up the rest treatment again, and administered bromides in small doses. All went well until the end of the seventh month, when she noticed that the foetal movements became weaker, and in a few days ceased. She aborted a boy at the beginning of the eighth month.

XI. They suffered themselves to undergo another period of abstinence, lasting five months, and she was again in a family way. This time I decided to make a radical change in the treatment. Instead of rest in bed, with its accompanying, constantly increasing mental worry and anxiety, I ordered the servant girl sent away, and prescribed for my patient housework, including washing and scrubbing. The patient felt excellent during all the time, was cheerful and hopeful. She was delivered at term of a healthy boy. The labor was normal, but the labor pains were weak, and therefore the process was extremely tedious. Her convalescence was tardy; she had a rise of temperature on the third

day of the confinement, which has continued for about ten days. There was slightly offensive discharge from the uterus for several days. There was no tear in either cervix or perinæum. The uterus was found to be retroverted. Vaginal and intra-uterine douches were administered, and on the fourth week she was about and in good health.

No.	Interval between pregnancies.	Duration of pregnancies.	Sex.	Treatment.
I.	.....	6 months.	Girl.	No treatment.
II.	6 weeks.	6 weeks.	....	" "
III.	3 months.	8 months.	Boy.	" "
IV.	6 "	6 "	"	" "
V.	3 "	6 "	Girl.	Rest in bed. Medicinal treatment not known.
VI.	7 "	6 "	Boy.	Rest in bed.
VII.	5 "	5 "	Girl.	Viburnum prunifolium.
VIII.	2 "	6 "	Boy.	Rest in bed.
IX.	3 "	7 "	"	No treatment.
X.	4 "	8 "	"	Rest and bromide.
XI.	5 "	Full term.	"	Moderate exercise ; housework.
	40 months.	73 months.		

From the accompanying table we see that from her seventh pregnancy her uterus was steadily improving in the ability of retaining the foetus one month longer than in the preceding pregnancy. It is impossible to say whether it was due to the treatment instituted—probably not. She underwent all the usual treatments—syphilitic, curettement, rest, and medicinal—without avail. I do, however, firmly believe that the moderate exercise, which consisted of housework, has contributed much to the successful issue of her last pregnancy. It seems to me perfectly logical that in all cases of "habitual abortion" when the rest treatment proved of no avail, the reverse should be tried. Such patients are, as a rule, very despondent, and forcible confinement to bed makes them more nervous and melancholy. Active exercise, therefore, which strengthens the body and occupies the mind, seems to be the best therapeutic measure.

Dr. E. P. Davis, of Philadelphia, kindly consented to see the woman in consultation with me, and he was so much interested in the case that he saw her with me several times during and between her pregnancies. She was carefully examined, and nothing abnormal was found. Dr. Braddon Kyle has made an autopsy of

the ninth and tenth babies, and also found nothing abnormal. All the *fœtuses* showed necrosis of the skin.

The urine was examined only during the ninth pregnancy, with negative results. I am sorry that I have neglected to make a thorough examination of the urine during and between all her pregnancies, which might have revealed a transient albuminuria.

(OS CALIFORNIA BUILDING.

IN MEMORIAM: ROBERT BATTEY, M. D., LL. D.*

BY THADDEUS A. REAMY, M. D., LL. D., CINCINNATI.

Dr. Robert Battey was born near Augusta, Georgia, November 26, 1828. He was a son of Cephas and Mary Magruder Battey, whose ancestors were Quakers and who settled at an early day in Providence, Rhode Island.

Young Battey received his academic education in Richmond Academy, Augusta, Georgia, and at Phillips Academy, Andover, Massachusetts. Subsequently he attended, in Philadelphia, Professor Booth's School of Analytical Chemistry, and was graduated from the Philadelphia College of Pharmacy March 17, 1856. He studied medicine under the preceptorship of his brother, Dr. George M. Battey, of Rome, Georgia, and later under the late Dr. Elwood Wilson, of Philadelphia. He attended medical lectures at Jefferson Medical College and in the University of Pennsylvania, graduating from the former institution March 7, 1858. From the same institution he received the degree of LL. D. in 1891. He spent one year, 1859-'60, in post-graduate studies in the hospitals of Paris. Returning to Rome, Georgia, he entered upon the practice of his profession, continuing to reside there, with an exception noted below, until the close of his life. During the years 1872-'75 he was Professor of Obstetrics in the Atlanta Medical College, and was during the same period editor of the *Atlanta Medical and Surgical Journal*. During four years of the late war he was surgeon of the Nineteenth Georgia Volunteers, and was also surgeon to Hampton's Brigade.

* Read by title before the American Gynecological Society, May 28, 1896.

At the time of his death he was a Fellow of the American Gynecological Society, was its President in 1889, a member of the American Medical Association, of the Medical Association of Georgia, honorary Fellow of the Obstetrical Society of Edinburgh, Scotland, and Fellow of the British Gynecological Society. But it was in his little mountain city of Rome, Georgia, away from the hurry, the worry, the bustle and strife of the larger city life, that this strong-minded and pure-hearted man found favorable opportunities for observation, meditation, and original research, the results of which exalted his profession, blessed humanity, and established his own reputation throughout the world.

It is not deemed by the writer to be necessary or expedient to make any statement calculated to reopen in any quarter the controversy as to priority, which for so many years ran high, and at times the discussion was not characterized by amiability.

Batley's first operation—oöphorectomy—was made at Rome, Georgia, August 27, 1872, and published in the *Atlanta Medical and Surgical Journal* in September of the same year. The patient was aged thirty years, and had been an invalid for sixteen years, having menstruated but twice prior to coming under Batley's care. "The menstrual molimen was excessive, accompanied by headache and usually by convulsions, epileptiform in character, leaving the patient in a comatose state." (Batley.)

Both ovaries were removed by *abdominal section*. It is well known that in subsequent cases the operation was done by vaginal section; at a later period of his work he returned again to the abdominal incision. His first patient was speedily and permanently cured.

(This woman was yet living and in perfect health at Batley's death.)

It may, I think, be now stated without controversy that, so far as Batley knew and so far as published cases enabled any one else to know, his operation had no precedent. It was the product of his own brain.

But the truth of history demands that we inquire what was Batley's more mature conception of the scope and purposes of his operation. Let him speak for himself, four years later:

"... In these operations I have sought to effect a cure of the varied maladies complained of by the removal, in certain instances, of an ovary viciously or abnormally performing its functions, and

more frequently, by the removal of both ovaries, to put an end to ovulation entirely, and thus to determine the menopause or change of life; whereby I have hoped, through the intervention of the great nervous revolution, which ordinarily accompanies the climacteric, to uproot and remove serious sexual disorders and re-establish the general health. I have done ten operations in all, of which three fall under the former and seven under the latter head. . . .” *

Thus it is seen that Battey's idea was to remove the ovaries, *whether diseased or not*, by abdominal or vaginal section, for the purpose of removing painful menstruation and neurotic conditions; whereas Tait's idea was to remove diseased uterine appendages, ovaries, and Fallopian tubes by abdominal section *because they were diseased*, and without reference to their influence upon menstruation or the neurotic states.

The sequel proved that Battey's idea, strong and great and original as it was, was not in every direction and in all its features expansive; however, recent experiments and clinical observations show that ovarian influence over the nervous and nutritive processes is even greater than Battey supposed, so that his thought is still expanding. The idea of Tait, on the other hand, was the starting point for the development, practically, of much that now stands for abdominal surgery. Battey's claim—that removal of the ovaries would probably in every instance arrest menstruation—has been by many controverted; but it is, in the opinion of the writer, sustained. Upon a critical examination of the clinical evidence, the apparent exceptions do not change the general fact.

It must be admitted that in some instances, even among Battey's own cases, the menopause being precipitated by the removal of the ovaries, the so-called reflex nervous symptoms were not relieved, but, on the contrary, aggravated; yet in a large number of cases the benefits arising from the practice are striking. On the other hand, the idea of removing the appendages that were the seat of gross and often destructive disease, alike inimical to health and a menace to life, justly became popular with the profession, and led to abuses that caused even Tait himself to cry halt—abuses from which the profession has not yet entirely recovered, although improvement is encouragingly manifest.

* Extirpation of the Functionally Active Ovaries for the Remedy of Otherwise Incurable Disease. By Robert Battey, of Rome, Georgia. *American Gynecological Transactions*, vol. i, p. 101.

It was not surprising that, after the work of McDowell and Clay and Dunlap and Spencer Wells and Atlee and others in establishing the feasibility of abdominal section for the removal of ovarian tumors, Tait should have selected that route for the removal of diseased ovaries and tubes. Tait's grand and original conception was, as has already been stated, not the *method* but the *fact* of removal for disease of the structures removed. Battey's original conception and demonstration of the feasibility of removal of the ovaries by the vaginal route had in it much more than he himself dreamed of, notwithstanding, as has been seen, he practically abandoned that technique in the execution of his operation; yet the great thought did not perish, for to-day, under the inspiration of Péan, followed by Lucas-Championnière, Richelot, Ségond, and others, Battey's idea is being reflected back upon us and upon the world.

The extirpation of diseased appendages, and of other structures as well, by the vaginal route is now done by the leading surgeons of practically the Latin race of the earth—France, Belgium, Spain, Portugal, Italy, Spanish and Portuguese America. It is, also, the practice of many of the leading and most successful surgeons of our own country. It is the infant thought of Robert Battey grown to great magnitude.

In connection with the question of vaginal or suprapubic methods of operation, it is proper to note that our distinguished countryman, T. G. Thomas, removed an ovarian cyst by vaginal incision as early as February 6, 1870. There were present at the operation Drs. Peaslee, Brown, Purdy, Walker, and Smith. (See Thomas' *Diseases of Women*, second edition, page 723.)

Dr. Battey was not a prolific writer, yet he was industrious in furnishing papers for the various medical associations in which he had membership. These contributions show intelligence, honesty, and skill in the presentation of the results of his own clinical work and the conclusions which he had himself reached. He was one of the honored founders of this Society, and, until health failed him, he was seldom absent from its annual meetings. In debate he was modest, but clear, entertaining, and instructive. Without circumlocution, he usually in few words reached the core of the matter, and stated his views lucidly. His original papers contributed to our *Transactions* are:

1. Extirpation of the Functionally Active Ovaries for the Remedy of Otherwise Incurable Diseases, vol. i, page 101.
2. Is there a Proper Field for Battey's Operation? vol. ii, page 279.
3. Intra-uterine Medication by Iodized Phenol, vol. iv, page 55.
4. What is the Proper Field for Battey's Operation? vol. v, page 38.
5. Battey's Operation: its Matured Results, vol. xii, page 253.
6. President's Annual Address, vol. xiii, page 37.

A perusal of these papers will prove instructive, and at the same time show how earnestly and thoroughly he was for years occupied with the elaboration of his special work.

In these papers his accuracy in clinical observations and his powers of correct interpretation are quite apparent. Those who had the opportunity of frequently witnessing Dr. Battey's operations will readily concede to him more than ordinary dexterity as compared with operators of good reputation.

His thorough anatomical knowledge gave him confidence, so that he was a bold but prudent operator. It must have required courage of a high order to do his first oöphorectomies, assuming the responsibility of possible consequences in more directions than one.

(He personally narrated to the writer how a band of men, among them physicians of his vicinity, awaited the result of the first case, intending, in case of the patient's death, to have Battey arrested and criminally prosecuted.)

In stature, Dr. Battey was tall. Until of late years he was of rather slender build, quite erect and agile in movement. His dress and general bearing frequently led strangers to suppose him to be a minister of the Gospel. He was under all circumstances gentle, kind, and considerate in his relations with those with whom he came in contact. He was never ostentatious. Never did he seem to be conscious of himself or of his superiority. But his native kindness of heart, sweetness of spirit, and purity of thought and life clothed him with large personal magnetism. He is said to have been the friend of almost every inhabitant of the little city in which his laborious and useful life was spent. For the two years previous to his death, which occurred at his country place, two miles from Rome, November 8, 1895, he was in such broken health that he was practically unable to do any work. His

large gynæcological business, including the management of his private hospital meantime, was cared for by his son, Dr. Henry Battey, already well known to the profession, and Mrs. Martha Battey, the accomplished and devoted wife of the now deceased surgeon. Dr. Battey was a member of the Methodist Episcopal Church South, and died tranquilly in the faith of immortality.

OPERATIVE PROCEDURES FOR PELVIC INFLAMMATION.*

BY LOUIS FRANK, M. D.,

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In all operative work our aim should be to obtain the best results for the patient, sacrificing as little as possible, and to do this with the least possible danger. The question of how these ends may best be obtained in pelvic surgery, and especially in that class done for the relief of inflammatory troubles, is one deserving of a great deal of attention—more so just at present than a few years ago on account of the various operations which now seek for favor. A thorough knowledge and appreciation of the pathological processes which occur in the pelvis, with the changes resulting when these processes have run their course, is essential in order to properly appreciate the condition with which we have to deal. Upon the condition present in the pelvis and in the abdomen, and upon an understanding of the changes which have occurred or are taking place, should our method of operation depend.

Vaginal hysterectomy for pelvic inflammation, acute or chronic in character, has again, after a lapse of many years, as reintroduced by Péan and carried out by his followers, Jacobs, Ségond, and others, been given a place in gynæcological surgery. It is claimed by these men that many conditions can be treated by this operation to better advantage than by the operation of abdominal cœli-

* Read before the Kentucky State Medical Society, June 10, 1896.

otomy. There are many propositions which confront us in the selection of operations for these diseases. Besides vaginal hysterectomy, with total ablation of the appendages, we have the operation of vaginal incision with or without removal of the appendages; we have also Kelly's operation of total extirpation suprapubically, in addition to the operation with which we are now so familiar. The question between abdominal and vaginal section for inflammatory disease does not seem to be definitely settled. It is still *sub judice*, and it is in operations for this class of disease that the fight is being waged between the two methods. Vaginal section has been done by comparatively so few operators as yet, and the reported cases are so few in number as compared with removal of the appendages from above, that we can hardly make a fair estimate of its value. Sufficient time has not elapsed for many of the sequelæ which follow these operations to have shown themselves.

The operation of vaginal hysterectomy and vaginal cœliotomy for pelvic disease has come to stay, although there may be some slight improvements in the manner of carrying it out. It has its advocates, and there are those who discountenance it for the class of cases that we have under consideration, one surgeon of great prominence having stigmatized the subpubic operation done for pus tubes as "blind, ignorant, and cowardly." Again, there are other men who are carried away by it; with them it is a fad; everything with them is vaginal hysterectomy. They can see no more good whatsoever in the abdominal route, but every woman who comes to them with disease of one or both appendages must needs have her uterus removed. With them every case is one in which this operation is especially indicated. Neither of these positions is the correct one to take. We should occupy the middle ground. In certain cases vaginal hysterectomy is no doubt to be preferred to removal of the tubes and ovaries from above, but it should be remembered that the operation is always and should always be secondary to the abdominal route. We hear certain men tell us of the indications for a vaginal operation, others of the indications for the abdominal operation. Any case which can be operated upon from below can also be operated upon from above; but not all cases which can be operated upon from above can be dealt with subpubically. Therefore I say that the indications for the vaginal operation should be and are secondary to those for abdominal section.

Now let us for a moment consider some of the indications or

reasons why vaginal hysterectomy should be done in preference to the abdominal operation. They tell us first that in all cases of bilateral disease the uterus should be removed, as without the tubes and ovaries it is a useless organ, capable of doing much harm, and so long as it remains the patient will never be permanently cured. This, however, is a fallacy. If the uterus is practically normal, if it is not in a septic or diseased condition, there is absolutely no indication for its removal. There would be just as much reason, if removal of the testicles became necessary, to remove a man's penis to effect a permanent cure for double orchitis. You might as well remove the appendages in all those cases where it was necessary to curette the uterus for a septic endometritis; the indications are just as plain as in many where the opposite exist. As a matter of fact, if the uterus is not in a septic condition, and even if it is septic, so far as the endometrium itself is concerned, which latter may be relieved by curetting at the time of the abdominal operation, we find that with the tubes and ovaries completely removed, an artificial menopause being brought about, the organ will undergo the same retrograde changes that we find occurring at the climacteric. Men who have failed to get good results by abdominal removal of the appendages with a normal uterus have done so on account of lack of proper technique. Their operation has possibly not been complete; either a part of the ovary or portion of a septic tube has been left behind, or they have feared to separate dense adhesions which they may have encountered. For these men the vaginal operation with total removal, many times only so called, is of course to be preferred. They will also tell us that the operation of vaginal hysterectomy is much easier, and that it is far safer to the patient. All other conditions being equal, this would certainly be an argument in their favor. It is easier to them because by this method they do not do as complete surgery as is done by the abdominal route. A perfect and complete operation would in many instances be far more difficult from below, to avoid which they leave behind adhesions, portions of tubes, and abscess sacs, which they have feared to handle from above, and they have lived in the hope that these adhesions would disappear. I have heard men say, and have read in the medical press, that those adhesions which remain after vaginal hysterectomy will disappear; nothing is said about those which may perhaps be left after abdominal section. This is certainly a strange pathology. In my experience I have never met

nor do I know of a single instance where organized adhesions have been present and have ever disappeared. Their statement is not borne out by pathological research.

As to the safety to the patient: It undoubtedly is safer to the patient in a certain class of cases. It is safer to the patient because of the incompleteness of the operation, because of the fact that drainage is secured, and that the peritoneal cavity is at times not opened. It is only safer so far as the present is concerned. The sacs, however, may fill up in the future. Jacobs' mortality was last year, when he made his report, about four per cent. The mortality of other operators was equally as high, if not higher; contrast this with one hundred and seven total ablations by Howard Kelly, with not a single death; contrast it with the results obtained by abdominal operations. I feel sure that the mortality is not greater.

Again, they will talk to us about quick convalescence; but they speak merely of the surgical convalescence. Abdominal operators prefer to keep their patients in bed even after they have recovered from the surgical operation *per se*; and if the vaginal operator has the welfare of his patient at heart, instead of trying to impress the profession and laity with his brilliant results, he would also keep his patient in bed just as long as the man who operates by the abdominal route. I have never allowed my cases of vaginal hysterectomy to get up before the end of the second week, not, however, because they were not able to do so; many of my abdominal cases could have got up at the end of the first week, but all were kept in bed for two weeks.

As to the sequelæ and the complications that may be met with: I believe that they are even more numerous by vaginal than by the abdominal operation. More cases of fæcal fistulæ and more cases of vesical fistulæ comparatively have resulted from the vaginal operation than from the operation above the pubes. Complications often go unseen when arising during the operation from below. The ureters are often ligated or included in the clamp, and it is not known until the patient dies. Likewise the intestines have been nipped in the ends of the clamp, and it was not discovered until a fæcal fistula had become established, or until peritonitis as a result of fæcal leakage had occurred. These complications will not arise so frequently in abdominal surgery. When they do occur they are much more often detected at the time of the operation. I admit that they may also be overlooked, but not nearly

so frequently. Then, if they should be met with, it is almost impossible in many instances to deal with them from below, and the vaginal hysterectomist must pack the vagina and then open the abdomen to deal with the complication which has arisen.

As to hernia: With a proper method of closing the abdomen, with the care that should be observed, there is little danger from hernia by the abdominal route. The vaginal operator tells us that hernia by the vaginal route does not occur. It had not occurred at that time, but now since these cases have gone on for a while, since we have had time to observe them as we have our abdominal operations, we find that hernia does occur following the vaginal operation. Which now, think you, is easier to treat, a vaginal hernia or a ventral hernia? Notwithstanding all this, we have to-day men among us who are so daft on the subject of vaginal hysterectomy that every case is operated upon by that method. They can see no further necessity for the abdominal route; they have deserted the mother which gave them birth. Again, there are men equally as violently opposed to the vaginal operation. There is much good in both. As I have said before, we should select the route best suited to the individual case. Undoubtedly there are cases where the vaginal operation is to be preferred. There are also cases where the abdominal operation is imperatively indicated. Much can be done in a conservative way in the early stages of pelvic inflammation by vaginal incision—breaking up adhesions which at that time are localized entirely within the pelvis, closing up the incision, or, if there be serum, draining it out. In other instances better conservative work may be done from above. This is true in those cases where possibly only one appendage is diseased; where it is questionable perhaps whether we should remove one or both; in this class of cases better results will be obtained by the abdominal than the vaginal operation. The appendages must be brought out, they must be inspected, and this can be better done by our older methods of operating. In those instances, which in my opinion are in the minority, where the uterus itself—that is, the muscularis of the organ—has been invaded by pyogenic organisms, where, in other words, it is in a septic condition, possibly as a result of puerperal infection following an abortion most usually, and where the appendages are to be removed, then the operation can best be carried out from below. This is an absolute indication for the vaginal route. Or where there is a large

abscess cavity in the broad ligament, it may better be handled through the vagina. Small abscesses about the cervix can also be better treated from below. Intraligamentous cysts, if not large and without adhesions, can be more easily reached by an incision through the anterior vaginal fornix. Other cases, again, may best be treated by a combined method—by incising the vagina, and at the same time making an incision through the abdominal wall to guide us in our vaginal work. This is the case in multilocular abscesses in some cystomata of the broad ligaments with adhesions, and possibly in some few other conditions.

So we find there is still a broad field for this operation, and many cases can be and should be operated upon by this method. Each case has its indications, and what may do for one we may not apply to the other. I believe that early in many cases the vaginal incision with drainage may be of much good oftentimes in preventing more serious involvement of pelvic structures.

Properly applied, there is a great future for subpubic surgery, but it must be remembered that there are also limitations. However, as Gill Wylie says, "Had the French surgeons been as expert in abdominal surgery as the English and German, I do not think the vaginal method would have been so strenuously urged"; and now with some the pendulum swings too far, just as it always does when new procedures are introduced.

Many of these questions must yet be decided, as our experience in the different methods are so unequal as not to be properly compared.

CHOLELITHIASIS.*

By C. B. SCHOOLFIELD, M. D., DAYTON, KY.

The predisposing causes of biliary lithiasis are invalidism, child-bearing, and abdominal tumors. According to Webster, of Chicago, thirty-six per cent. of insane of both sexes—twenty-five per cent. of females and ten per cent. of males—have gallstones.

* Read before the Kentucky State Medical Society, at Lebanon, Ky., June 11, 1896.

Naunyn states that only about one per cent. of those who have gallstones show symptoms of their presence. Hospital statistics, however, show a much larger percentage than would be found in general practice, owing to the invalid classes in those institutions.

Ætiology.—Gallstones are formed in the gall bladder and hepatic duct although they are found in the cystic and ductus choledochus, it is not probable that they are ever formed at either of these points. Their principal composition is cholesterin, bile pigment, and epithelium from the mucous membrane, and occasionally pure bilirubin. Pathogenic organisms, especially the *Bacillus coli communis*, may find their way through the ducts and cause catarrh of the gall bladder, which, in connection with a sluggish flow of the bile, favors the formation of calculi. Their number may be one or thousands. As many as seven thousand have been found in one gall bladder. They are a dark-brown or chocolate color. If single, they are round or oval; when there are numbers of them, they are cubic or square shaped, with facets caused from pressure.

Diagnosis.—The first intimation of gallstones usually is an attack of biliary colic. The pain is of a lancinating, tearing, or grinding character, and located over the right hypochondriac and epigastric regions, in the back, and under the right shoulder blade. Gastric symptoms are usually most prominent, with vomiting, nausea, and headache. Anything taken on the stomach, food or drink, causes pain, which comes on generally when the contents of the stomach are passing into the duodenum. Jaundice occurs only in about fifty per cent. of the cases. Its absence is probably due to large calculi, that can not engage in or pass through the ducts. If the cystic or common duct becomes impacted with a stone, the pain is excessive; the patient becomes icteric, and a tumor is formed by the distention of the gall bladder. The fæces should be diluted and passed through a sieve or strainer in search of calculi. Their presence, of course, is pathognomonic of "lithiasis biliaris."

One of the most difficult things to differentiate from a gall-bladder tumor is a movable kidney; its shape, position, and the character of the pain are so similar that it is easy to be mistaken in the matter. This is especially true when there is jaundice, as occurred in a case under my care, from pressure on the bile ducts. The kidney is more movable, and, by careful manipulation, the fingers can be inserted between the edge of the kidney and the liver, which can not be done with the gall bladder. The latter

tumor can be traced up under the liver, and is less movable than the kidney. The pain in renal colic follows the course of the ureter toward the bladder; blood in the urine and the passage of a cystic calculi are points of differentiation. The occupation of the patient and the blue line on the gums are the diagnostic points in lead colic.

Treatment.—The medical treatment of gallstone disease consists in giving remedies to increase the rapidity of the bile flow, to prevent the formation of calculi, and encourage their passage through the ducts—soda salicylate, soda phosphate, and the free use of the lithia waters. A course at some of the mineral springs, such as the Carlsbad, Vichy, Buffalo Lithia, or the French Lick Springs, is usually recommended.

The above is a brief outline of the usual routine treatment of cholelithiasis.

We are not always able to elect in the treatment of cases as they come to us; opposition of the family or the patient to operative interference compels us to do the next best thing. Much has been said in favor of each and all of the above remedies. Personally, I have seen no decided results from any of them.

Surgical Treatment.—When gallstone disease is established beyond a reasonable doubt, it is no longer a medical disease, unless there are stones passing with the fæces, followed by amelioration of symptoms. When we have a distended gall bladder, with or without jaundice, accompanied with violent pain and other evidences of gallstones, cholecystotomy should be recommended and insisted on for its relief. Before occlusion of the ducts, jaundice, and cholæmia, cholecystotomy is one of the simplest and most successful operations known to abdominal surgery; but if delayed until these complications arise, it becomes one of the most difficult as well as dangerous. With the latter conditions a biliary fistula should be established and the gall bladder drained until the jaundice clears up, and then perform a secondary operation if necessary for the removal of stone from the ducts. The preparation of the patient is the same as that for other abdominal operations. The incisions may be vertical, as recommended by Tait, along the edge of the costal cartilages, or in the course of the external oblique muscle, as recommended by Greig Smith. For removal of calculi from the cystic or common ducts, a combined incision may be made to give working space. If there are no signs of occlusion, it is best

to stitch the gall bladder to the abdominal incision before opening it. The method I have used in doing this is to insert two silkworm-gut ligatures far enough apart to allow a sufficient opening in the bladder for extracting the stone, these ligatures to include the entire thickness of the abdominal walls, the serous and muscular coats of the gall bladder. These two act as anchors, and draw the organ up snugly into the wound. It is then stitched with fine silk or cat-gut closely to the fascia and peritonæum only. If the skin and muscular tissue are included, it forms a mucous lining to the fistula, which interferes with closure, and is liable to cause hernia. Opening the gall bladder is not only necessary for the removal of stones from its interior, but is an important part in the method of removing them from the cystic duct. When it becomes necessary to incise the ducts for the removal of calculi, the closing sutures should be inserted before the stone is removed. Unless this is done it becomes a very difficult procedure. In simple, uncomplicated cholelithiasis, without occlusion of the ducts, the gall bladder might be closed after removal of the calculi, and dropped back without any great risk; but I do not think it is good surgery to do so. In the first place, stitching the bladder to the walls renders it perfectly safe; secondly, the drainage thus secured cures the catarrh; thirdly, the position in which it is held prevents the accumulation of calculi in the future. Cholecystenterostomy should be confined to complete obstruction of the common duct. The operation may be performed by the Winnewarter-suture method or with the Murphy button. I venture to say that any one having seen the latter method will never resort to the suture. Cholecystectomy is an operation of necessity and not of choice. A small, friable gall bladder that can not be brought up into the incision may require removal; it may be tied off or enucleated, and the parts drained. The statistics of recovery after cholecystotomy, as far as obtainable, are about ninety-five per cent. when the ducts are not occluded. When there is obstruction with calculi, the percentage is somewhat lower; but even with such conditions there is a very low mortality.

During the five years that I have been doing abdominal work I have done but one cholecystotomy. The fistula closed on the thirteenth day, and the patient was out in three weeks.

631 SIXTH AVENUE.

THE EMPLOYMENT OF GAUZE IN THE UTERINE CAVITY.

By JOHN H. RISHMILLER, M. D., MINNEAPOLIS, MINN.,
Ex-House Surgeon to the Woman's Hospital in the State of New York.

The employment of gauze in the genital canal in women has attracted my attention for the past three years, and during this period I have missed no opportunity of investigating this subject. I wish to consider gauze as utilized, first, as a uterine drain, and, second, as a uterine tamponade; its judicious and injudicious employment, and the effects we may expect directly or indirectly from its use.

For drainage to be effectual it must afford a ready exit for the secreted material, and so prevent reabsorption. Many operators invariably tamponade the uterine cavity with gauze, and some perform the identical process with the cervical canal, while others simply insert a narrow strip reaching into the uterine cavity and protruding from the external os by several inches. But how many are contented without gauze insertion? None if it were always accessible. Our German *confrères* in a measure have discarded gauze introduction into the uterine cavity subsequent to curettement, and it seems to me the ideal and most rational process. I am firmly convinced of the fallacy of packing the uterine cavity in aseptic cases that have no functional disturbances. Furthermore, I invariably have noticed a gradual rise of temperature after thirty-six or forty-eight hours, no matter how scrupulously antiseptically my work was executed or how aseptic the cases I was dealing with. Experience has demonstrated that *the average temperature after curettage is lower without than with gauze packing*. Why, therefore, are we employing gauze tamponade so promiscuously without more thought?

It is not my purpose to decry the invaluable therapeutic agent gauze, but, on the contrary, to maintain that it is indispensable in all forms of surgery, provided we employ it discriminately and not mechanically, or in a routine fashion. Permit me to ask a question: why do we tamponade the uterine cavity and canal and speak of it as uterine drainage? In tamponing, the uterus is stimulated to con-

traction, tending to expel the gauze through the cervical canal, and by so doing it presses the gauze over the internal os, forming a plug, which dams back the secretions. The wedge of gauze, if I may term it such, is always covered with a thick tenacious mucus tinged with blood, and resembles uterine catarrh secretion. This gummy mucus is the result of uterine irritation and inflammation, kindled by the presence of a foreign body. On examining the gauze after its extraction, we readily distinguish between the part which has been in contact with the uterine walls and that which has been in the interior of the tamponade. As the meshes are thus occluded, it is evident that no drainage can percolate through the gauze, and whatever secretion exudes from the cervical canal escapes between the walls of the uterus and the ball of gauze. Now imagine a uterus tamponed for thirty-six hours or longer, the upper space of the corpus uteri occupied by mucous or septic matter, as the case may be; on uterine contraction, this fluid seeks the place of least resistance, and what is the result? It is forced into the Fallopian tubes, lymphatic sinuses, blood vessels, etc. If we are treating a pure aseptic case no bad results can follow; but suppose we have a septic one, or our antiseptic technique has been imperfect, then we can aptly comprehend how a rise of temperature is produced. Many patients have developed after curettage salpingitis and pyosalpinx, which has been erroneously attributed to the improper use of the curette. This is an absurdity; it was produced by indiscreet tamponade of the uterus, thus hindering the egress of secretions through the natural passage, but favoring it through the unnatural one—viz., the ostium uterinum. In puerperal cases it is even more imperative to bear this in mind, because we are encountering enlarged Fallopian tubes, sinuses, etc. The less we tamponade in septic puerperal cases the more tubes will be saved from the necessity of ablation. *More cases of pyosalpinx are produced from the injudicious use of uterine-gauze tamponade than from the use of the curette.*

It has been maintained that the uterine canal is held patulous by the gauze, and permits egress of the secretions. This is fallacious; on the contrary, the os is plugged with the gauze. This fact I have demonstrated over and over again, and the same must be true with your observations. For instance, on inserting a speculum and then withdrawing the gauze, we always observe a gush of mucus—septic or non-septic—coming from the cervical canal. Serum will always drain from the uterine cavity, with drainage

or without drainage; but the cases that validate or invalidate uterine-gauze tamponade are the septic, both the puerperal and non-**puerperal**. In the former we frequently observe fragments of decidual membrane, sloughing tissue, foetal *débris*, etc., expelled subsequent to the gauze extraction. Another circumstance to verify that the uterine cavity and canal is a better drain without than with gauze is confirmed clinically: on extracting the gauze after curettage, where a rise of temperature has been observed, the fever will, as a rule, immediately abate. We have no better drain than the cilia, and by packing we impede the ciliary current.

In puerperal sepsis with effete retained material, emptying the uterus thoroughly and following with a tepid antiseptic irrigation, loose insertion of gauze into the uterus, which is to be extracted in six to eight hours, favors the removal of effete gummy matter by adhering to the gauze. The longer we allow the gauze to remain the more it loses its usefulness as drainage by the interstices being occupied and blocked by a fibrinous deposit and cast-off cells, the gauze acting like a filter. Too strong germicidal solutions for irrigation act as a caustic, and produce suppuration, which serves as a culture medium for the unremoved germs, some of which remain, no matter how thoroughly we accomplish our work. If we accept the hypothesis that "the endometrium is not a mucous membrane, but is a lymphoid structure lining an embryonic organ," then we are considering structures which possess vital absorptive properties far more active than any mucous lining in the body. These lymphoid structures of the uterus are directly continuous with the innumerable lymph channels between the layers of the broad ligaments, and thus septic virus easily enters the portals of the general system. I wish to emphasize the using of *tepid* instead of hot uterine irrigation in all septic cases, for the reason that the capillaries and sinuses in the uterus are loaded with septic matter, and hot irrigation will cause these to contract, thus forcing the poison into the system, and hence the invariable chill following such a procedure. On the other hand, a tepid irrigation will dilate the mouths of the capillaries, sinuses, etc., thereby promoting the emptying of the virus into the uterine cavity. This is accompanied by a slight bloody coloration of the irrigating fluid and a decrease of all septic symptoms.

Another too frequent employment of gauze is in the repair of lacerated cervixes. The originator of trachelorrhaphy, Dr. Thomas

Addis Emmet, does not insert gauze into the uterine canal after the performance of this very important operation. In fact, he condemns it *in toto*. We encounter lacerations which have been productive of the fungosities and catarrhal inflammation of the uterine mucous membrane. Here dilatation and curettage prior to trachelorrhaphy is absolutely essential for a cure.* It is claimed that a strip of gauze in the cervical canal will keep the denuded surfaces separated if overlapping, and prevents coaptation and union. We need not fear occlusion, provided we have left a central line of undenuded mucous membrane. It is unquestionably difficult to retain the gauze exactly on this central line; furthermore, the extraction will more or less disturb the parts in apposition.

I disapprove of gauze introduction into the uterus after curettement for gonorrhœal endometritis, on the principle enunciated that it is a prolific cause of pyosalpinx. An antiseptic vaginal dressing is highly commendable for the purpose of keeping the rugosities separated and serving as a surgical dressing.

I have directed your attention to the evil of using gauze without forethought; but now let me merely mention the maladies where firm uterine tamponade is destined to produce marvelous results. In sterility, depending upon flexion of the uterus, where the lumen of the cervical canal is narrowed and bent on itself or tortuous, accompanied by dysmenorrhœa and other functional disturbances, thorough tamponade after dilatation of the cervical canal and curettage of the corpus uteri will uniformly be followed by unusual amelioration of all symptoms, and in some cases absolute cures. The cervical canal should, in all instances where we are seeking to keep the canal patulous, be tamponed as thoroughly as the uterus. If this is neglected in even the minutest detail, we are not accomplishing our desired object. The gauze should be left *in situ* for a week, or as long as the temperature will permit. Tamponade is invaluable in uterine hæmorrhage, when the muscular walls are flabby and inert, serving as a stimulus and causing the uterus to contract for the expulsion of the foreign body. Intra-uterine fibromata may be encouraged to enter the cervical canal by frequent repeated uterine tamponing, and ultimately require excision. In some cases with sluggish circulation of the pelvic viscera a thor-

* Dr. Emmet never cures the uterus at the time of operating for laceration of the cervix.—EDITOR.

ough tamponade will tone up the vessels and induces their emptying. The absorption of parametritic exudation is favored by thorough tamponade; likewise phlegmatic nodulations in the broad ligaments, and boggy congestions immediately involving the surrounding structures of the uterus, are much relieved by uterine packing.

Operators are at variance as to what gauze is the best and how it should be prepared. They are as inharmonious with their theories as the gauze differs in its texture. The cross threads of gauze impede drainage, and, if manufacturers could supply us with gauze similar to lamp-wicking, we would have advanced one step toward possessing an ideal drainage. Theoretically, we should employ the finest gauze on the market, since the activity of capillary movements varies inversely with the diameter of the capillary tube. For my purpose I use the dry-sublimated (1 to 2,000) gauze or a ten-per-cent. iodoform gauze. This is to be cut into narrow strips one half to one inch in width, varying with the conditions to be treated. The most important requirement is the absolute sterilization, which should be done with dry heat immediately preceding the operation. Under no assurances would I rely on the gauze which has been sterilized by manufacturers. Do your own sterilizing, and then you know what you have.

From the facts presented I wish to deduct the following conclusions:

1. The uterus should not be tamponed in aseptic cases unaccompanied by functional disturbances.
2. Firm uterine-gauze tamponade does not promote drainage, but, on the contrary, favors retention.
3. In trachelorrhaphy and amputation of the cervix, uterine gauze insertion is a hindrance to coaptation, and on extraction a disturbance to primary union.
4. In septic cases, both puerperal and non-puerperal, very loose gauze insertion into the uterus, which is to be removed within six to eight hours, is highly commendable.
5. In functional disturbances of the uterus depending upon flexion, mural neoplasms, and impeded circulation, thorough tamponade is invaluable.

DAYTON BUILDING.

SURGICAL INJURIES TO THE URETERS.*

BY J. M. BALDY, M. D., PHILADELPHIA.

Injuries to the ureters are by no means uncommon accidents, even though few of them ever find their way into print. The question of the repair of a severed ureter within certain accepted limits was a few years ago unsolved, while to-day we stand upon substantial surgical grounds in saying that the subject is settled beyond peradventure. It is true there yet remains some few details in the technique to clear up, but the main proposition is accomplished. The adoption of such makeshifts as ligation of the severed ends, formation of a urinary fistula, or nephrectomy, is ancient history. To-day we have but two propositions to consider—uretero-ureteral anastomosis and uretero-cystostomy (bladder implantation †). Both these procedures have been demonstrated as feasible, first by experimentation (Van Hook, ‡ Paoli, § and Busachi) upon dogs, and subsequently by various surgeons upon the human subject. There are now upon record seven successful operations of this character, and it is not too early, I think, to make a comparison between the two methods for the purpose of determining which is the better or in what class of cases each is applicable. It has been contended by some surgeons that these two procedures are not rivals in the same field, but are applicable to distinctly different classes of cases. In this matter, however, I am compelled to dissent, and the facts as well as theories seem to uphold my position. Experience seems to demonstrate more and more that bladder implantation is applicable to a much larger group than is uretero-ureteral anastomosis, and, if any choice must be made between the two methods, this is the method of election. In this connection several points present themselves for consideration, a careful study of which will materially aid us in arriving at an intelligent conclusion.

It is necessary for the purpose of performing uretero-ureteral anastomosis—

* Read before the American Gynecological Society, May 28, 1896.

† Baldy, *American Gynecological and Obstetrical Journal*, November, 1894.

‡ *Journal of the American Medical Association*, December 16, 1893.

§ *Annales des Maladies des Organes Gén. Urine.*, 1888.

That the two ends of the ureter be perfectly free and easily brought together.

That the bladder end be more patulous (or capable of being made so) than the kidney end.

That the injury to the ureter be sufficiently high in the pelvis to enable the surgeon to readily carry out the necessary manipulations.

In the case of uretero-cystostomy but one point is necessary—

That the injury be not too high in the pelvis to enable the kidney end of the ureter to be approximated with the bladder.

Theory is a very good method by which to arrive at a conclusion if facts be wanting, but where facts are at hand theory is no longer of consequence. Applying this axiom to the matter under consideration, it will be recalled that seven operations are on record for the repair of severed ureters. Of this number two (Kelly and Bache Emmett) were of the method uretero-ureteral anastomosis; five (Novaro, Kelly, Krug, Penrose, and Baldy) were by the method uretero-cystostomy. A careful study of this group of operations discloses several important facts: Five of the seven procedures were bladder implantations, and in no one of the five could the end-to-end anastomosis have been accomplished. Of the two cases of end-to-end anastomosis one at least (Kelly *) could have been corrected with equal success by bladder implantation. In the second case (Bache Emmett †) the tear was at an unusually high level, the case, in fact, almost unique in this respect. Even in this case it is not stated in the report that the bladder and ureter could not be approximated. It is therefore evident, as far as practical experience demonstrates anything, that uretero-cystostomy can be performed in almost all these accidents.

Analyzing the five cases of uretero-cystostomies, it at once becomes evident, as has been pointed out, that in not a single one of them was uretero-ureteral anastomosis possible. The operation in the cases of Novaro ‡ and Kelly * were performed some weeks after the original injury, and at a time when the bladder end of the ureter was irretrievably lost. In the Penrose ¶ case the bladder end was

* *Annals of Surgery*, January, 1894.

† *American Journal of Obstetrics*, April, 1895.

‡ *Centralblatt für Chirurgie*, No. 27, 1893.

* *Johns Hopkins Hospital Reports*, February, 1895.

¶ *Medical News*, April 28, 1894.

cancerous, and in both Krug's * and my own case † the lower end was lost in masses of inflammatory deposits; in addition, the kidney end in Krug's case showed such thickening and friability from inflammatory changes that a uretero-ureteral anastomosis would have been impossible, as dilatation of the bladder end could not have been made even if it could have been found. Emmett's statement, then, that "it (uretero-ureteral anastomosis) is certainly feasible in every case in which there is no loss in continuity, and probably in those even in which quite a portion of ureter might be lost," is clearly theoretical, and has no basis in fact.

The facts established are, therefore, that in the great majority of cases uretero-cystostomy is possible. In but a small portion of the cases can uretero-ureteral anastomosis be successfully performed; even where this operation is feasible, in the great majority of cases uretero-cystostomy is equally practicable. If this be true, and as far as the facts are to be relied upon it is unquestionable, uretero-cystostomy is generally the operation of *necessity*. As to the operation of *election*, where the possibility of both methods present, the facts are not so decisive. However, the indications as far as they go seem to favor uretero-cystostomy. The points which have been considered in this connection are—

The ease with which each operation may be performed in any given case.

The danger of immediate obstruction.

The danger of future obstruction.

The danger of kidney infection.

As to the first point. Any injury to the ureter at the base of the broad ligament or thereabout forces the surgeon in case he desires to perform a uretero-ureteral anastomosis to work so low in the depths of the pelvis as to render the necessary manipulations very difficult, if not impossible; on the other hand, if the injury be at or above the level of the ileo-pectoneal line it is exceedingly difficult if not impossible to closely approximate the end of the ureter and the bladder. Therefore, within these limitations it is manifest that there can be no manner of rivalry between these two methods; it matters not what objection may obtain in either case, we are forced to adopt that which is feasible. As a matter of fact, how-

* *American Gynecological and Obstetrical Journal*, November, 1894.

† Baldy, *American Journal of Obstetrics*, vol. xxxiii, No. 3, 1896.

ever, in the vast majority of cases the injury occurs between these two points and at a position which allows of the approximation of the desired points with more or less ease. In the case of most neoplasms (intraligamentary cysts and uterine fibroids), where the ureter is severed at a very considerable distance from the bladder, it **will** be found that it is greatly elongated, sufficiently so to compensate for the high level of the injury and to render it easily brought in contact with the bladder. This is oftener true within these limits than that the bladder end is found, or if found, is in a condition to be used. Of the seven cases reported, uretero-cystostomy was performed or was feasible in six, and it is not recorded that it was not so in the seventh. Therefore, even if the statement that "it (uretero-cystostomy) can only be applied to those cases in which the injury is very close to the bladder" were true, practical facts demonstrate that as a rule these injuries occur at a point at which this operation is readily performed. Even though there be some little difficulty in easily approximating the ureter and bladder, such difficulty may be readily overcome, as was done in Kelly's case, by dissecting the bladder to a greater or less extent free from its attachments to the pubis, or by fastening the bladder to some fixed point on the pelvic wall by several stout sutures, as was resorted to in my own case. In neither of these cases was there any subsequent trouble either in the bladder, ureter, or kidney, and any criticism from that point of view is based purely on theory. The danger of immediate obstruction in the two operations does not seem to be great. In no one of the seven cases reported has this effect been noted, and it would seem that this complication does not form a very great element of danger.

Secondary obstruction would, however, appear as a possible defect, although as far as noted no such condition has occurred. In view of this possibility the criticism has been offered in the case of uretero-cystostomy that "the ureter is placed directly through the walls of the bladder instead of slantingly, as it is in Nature. This natural entrance is peculiarly well fitted to guard against a constriction of the canal; the opening through the viscus is oblong, the contraction of the muscular fibers of the bladder is spread over an oval length of the ureter, and closure of its lumen is thus made impossible." The objection is again altogether theoretical. The arrangement and action of the muscular fibers is quite different than as stated, and I think none of the gentlemen who have per-

formed uretero-cystostomy will for a moment concede that the ureter passes naturally more obliquely through the bladder wall than it is made to do by the operation. The practical test again settles the matter finally. I have personally had opportunity to examine two of these cases repeatedly with the cystoscope since their operations, one of which was performed about two years ago, and there is as yet no signs of stenosis, nor does the flow of urine from the ureteral opening in any way different from that of the non-injured side. In fact it would be well-nigh impossible to tell which side had been injured, except for the abnormal position of the opening on the side on which the operation had been performed. The simple precaution of splitting one side of the end of the ureter which is implanted into the bladder adds greatly to the certainty of non-stenosis. On the other hand, it stands to reason that there is no little danger of obstruction in an organ of such small caliber, where the opening in one end is (necessarily) narrowed by its forcible introduction into the other. Should by any possibility stenosis follow either operation, is there any one who doubts the greater ease with which it could be detected and treated in the case of uretero-cystostomy?

The dangers of kidney infection have been urged against uretero-cystostomy, but the arguments are too fallacious to stand for one moment the test of the facts. The statement is made that "the natural opening of the ureter into the bladder is valvelike, which is only patent when the ureter contracts upon its contents to force them into the bladder. Under new conditions it is at times constricted by the muscular fibers; it is at other times gaping. How can it then stand as a guard to the kidney? It must allow a back pressure when the bladder is full, and more positively still when this viscus contracts to empty itself." There are three propositions advanced in this statement, and all three are incorrect. In the first place, is the natural opening of the ureter valvelike? I conceive not, unless we are to consider that the ureter being more or less collapsed throughout its whole length acts in this way as a valve. In this case the same thing holds true on the injured side. Again, I have never heard any one who has had the privilege of seeing through a cystoscope the seat of the operation say that the opening was gaping. I have myself seen three of these cases, and in none of them did this occur. Finally, the position of the new opening, high up on the fundus of the bladder, eminently protects

it from the chances of septic invasion, and particularly from the back pressure caused by the contraction of the bladder on its contents. Finally, in not a single one of the five operations has kidney infection resulted.

To sum up then, it is clearly evident that in the large majority of cases of torn ureter during the course of an operation the injury will occur below the level of the ileo-pectoneal line, in which case it is amenable to treatment by uretero-cystostomy.

The danger of stenosis in uretero-cystostomy does not obtain.

The dangers of kidney infection are mythical.

All things considered, where the question of choice between the two operations arises, if there be any difference, it lies in favor of uretero-cystostomy.

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EDITORIAL.

SPECIALTIES AND MEDICAL ADVERTISING.

Perhaps nothing is more remarkable in civilized human nature than that peculiar form of hypocrisy which enunciates certain laws for general guidance, which the individual is at liberty to transgress, however, with entire impunity. So long as the individual proclaims that the law is an excellent one and that it should never be broken, he may break it himself with little fear of the consequences.

This inconsistency is nowhere more exemplified than in the methods of medical advertising daily in evidence among reputable practitioners in this country. As we look over the field, it would seem that every medical man was burning with a desire to advertise himself and merely lacked a safe opportunity to accomplish his object; yet not one dares to appear before any County Medical Society and advocate or attempt to justify what he himself as well as many of his fellow members do not hesitate to do whenever a pretext is furnished them.

No one appreciates more than we the splendid and generous work done in our medical societies, both general and special, by men whose object is unselfishly to add their quota to our common arcanum of knowledge; strong in their appreciation of their heritage as physicians and of their duty to their own and future times, these men make of these associations the well-springs from which we all draw sustenance and vigor. Yet, notwithstanding our ap-

preciation for the good and honest work from which we really benefit, we can not blind ourselves to the fact that in all medical societies the most persistent exhibitors and debaters, with few exceptions, may be divided into two classes; those who have nothing new to say but who say even this for the sake of having their platitudes appear in full in the journal which reports their society's proceedings and those who pretend to have something novel to report or exhibit to the world at large and who perform this unselfish task with precisely the same object in view, namely, free advertisement in a medical journal. The apparent difference between these two classes is in reality not very great, for both appear unflinching on every occasion which promises an audience and both discuss every subject in an authoritative way which would be ludicrous were it not continued *ad nauseam*; both classes are united, however, in the common object not of advancement of medical truth but in that solely of personal advertisement. The latter class, the members of which soon acquire prominence as being "active" in their society is by far the more dangerous; they are, as a rule, rather clever, they are nearly always hard workers (which is always an accepted point in their favor) and, having formulated to themselves a clear "plan of campaign," they are usually good and ready speakers. Thus they easily deceive a certain number of ingenuous minds who are willing to accept things for what they seem. But their "trail," by which they may always be distinguished from those reporters of cases and exhibitors of specimens whose motive is not a purely sordid one, is easily followed. It has this marked course and characteristic: a certain novel procedure or method of treatment is brought forward by such an one and earnestly advocated, with a preliminary report of a number of cases; at the next meeting the same subject is again brought to the fore with a report of more successful cases and probably a number of "cures" are awaiting a committee of inspection in an adjoining room. So far their method does not differ from that common to all medical men who desire to bring a matter of importance before the profession. But it is after this that the peculiar method which we describe becomes apparent. In the latter case, the subject in question is brought up, new cases are reported and fresh discussion is excited, meeting after meeting, until public interest begins to flag; then it is dropped by its author and never referred to again. But, in a very short time, he is again to the front with an entirely new procedure and

the same course is gone over until he finds it to his advantage to drop this also and find another excuse for keeping himself for a time before the medical public. By these means of systematic advertising, he usually succeeds in making a meretricious reputation frequently of wide extent, and yet it is gained without the contribution of one original thought or the enunciation of a single fact by which humanity is benefited. We have all watched such men rise from absolute obscurity and extreme poverty to extensive reputation and a large and wealthy practice, merely by this method of self-advertisement in medical societies.

Another form of advertisement, which has already become so common as hardly to excite remark, is that of newspaper interviews. Nobody to-day imagines for a moment that these are not at least indirectly solicited and yet such a suggestion would doubtless be very indignantly repudiated by these victims (!) of journalistic snares. Nevertheless, the facility with which reporters for the daily press obtain long interviews with more or less well-known members of the profession upon every subject however remotely connected with medicine or health, with which the public mind is at the moment occupied, is remarkable. The manifold consumption "cures," cancer "cures," the various subjects of serum therapy, bicycle riding for men and women, horseback riding, the comparative advantages of different makes of bicycle saddles, appendicitis, the superior value of a specified health resort—all are placed under contribution for personal advertisement and consequent increase of their office practice by medical men. How will the excuse prevail that the public need and demand enlightenment upon these subjects? If this were so, why is the required information not obtained from the faculty, as a whole, of our leading medical colleges or from the executive committees of our various medical societies, speaking for and in the name of their associations? Surely, in a matter of great and public interest, information could be obtained in this way, would be representative, would be authoritative and far more conclusive than the offhand (!) statement of opinion by any individual physician.

We pass by without especial comment the method of advertisement by testimonials to medicated wines, cordials, proprietary medicines and surgical appliances—these all bear the indorsement and names of prominent medical men with their respective addresses. We would not be very much surprised, indeed, if some day we

should see on a full-page advertisement the smiling features of some medical man bursting through a card board, with the cheery salutation and familiar question: "Good-morning! Have you used Pears' soap?" Of course, this would be accompanied by the legend: "This is what Dr. X. says" (name and address given).

All this is against not only the spirit but even the very letter of that law universally upheld among medical men as embodying the distinctive and vital difference between our noble profession and that occupation of the majority of men, which consists merely in buying and selling and is called *trade*. Why may this law be daily broken with impunity? Because the methods of self-advertising we have described are not labeled such; they are called by any other name and thus the medical conscience remains at peace.

We also believe fully in the justice and necessary maintenance of this law, but we believe that it is far more important to follow it in its spirit than in its letter alone. What is this law and what does it demand of us? That we should not announce our talents among the laity, however great we believe those to be nor however much we covet appreciation, either verbally or in print. In other words, we are forbidden to place our own valuation publicly upon our medical wares, as mere traders do, but are commanded to work and wait that the public "may know us by our fruits." This is the law, properly interpreted both in spirit and in letter; yet as we have seen it is constantly broken unblushingly and with impunity by many prominent medical men. But let the word "advertisement" be used in conjunction with the name and special work of a practitioner, even in a medical journal, and many would cry out that the code of medical ethics had been ruthlessly violated. Here again is a great inconsistency. It is altogether permissible that a so-called specialist should announce, before a few unbelieving members of his society, who know both him and his work, his wonderful methods and wonderful statistics for the gaping information of the many far-distant readers (who do not know him) of the medical journal which will report his words. This is allowed. Why then is it not permissible that reputable specialists should insert regularly paid advertisements, announcing that they are specialists, in the advertising columns of medical journals? We believe it should be.

Not only this, but we further believe that such a course would be greatly to the benefit of all specialties, if such a custom prevailed. It would have the effect of separating the true specialists—those

who really practice what they preach—from those who speak with the authoritative utterance of specialists before special societies, but whose *very general* practice in reality is as far removed from that of a specialist as is their previous special training. These latter are known only as specialists to the readers of special journals. Their immature opinions are given the same weight as those of the true specialist, whose entire time is devoted to the development of his especial branch. Advertising only and through distinctly medical channels would thus establish “protection” for specialties against the inroads of general practitioners—a form of unskilled and cheap labor fatal to the development or continuance of any specialty—and the medical man from a distance would be enabled to know with whom to consult as an authority in difficult cases requiring special advice. At present, such an inquirer is frequently deceived by the continuous “puff” every would-be-considered specialist gives himself in the medical journals and often approaches with reverence a consultant who in fact knows possibly less about the specialty than the acknowledged general practitioner who seeks him out. It would undoubtedly be the duty of a medical editor to see to it that no medical advertisement entered his journal from a professing specialist who was not one in fact; he must, if only in his own interest, use the same careful supervision necessary to exclude any other bogus advertisement. Nor would he permit the advertiser (if any specialist showed so little sense of decency as to wish it) to recite the superiority of his personal merits over those of his competitors. But such an advertisement as appears in all our medical directories in the list of physicians, with the addition that each insertion be placed under the caption of the specialty to which such an individual exclusively devotes himself, would in our opinion be both beneficial and proper. The present defenseless condition of all specialties has invited and incurred the inrush of a multitude of medical “wreckers,” who are ever on the lookout to increase their pecuniary gains. Specialties, as such, therefore are fast ceasing to exist, under the strain of competition between those who are and those who “profess,” and many men, well-equipped by previous training, special talent and personal desire to devote all their time and energy in one special field, are compelled to face the alternatives of becoming “jacks-of-all-trades” or starvation. If any check could be placed upon the ruthless ravages of outsiders, we believe many men, thus debarred, whose intentions are honest

and upright, would become true specialists and thus raise to a standard of accurate knowledge and dignity branches of our science which have now fallen in a state of decadence and confusion which, in the case of gynæcology at least, points to a not very far distant desuetude.

We firmly believe in the necessity of specialists in medicine, in the sense of exclusiveness, and we will gladly adopt and further any just means by which they may be protected and encouraged. If by opening our advertising columns to them such an end may be even partially attained, we will not only gladly do so but will also urge upon all our special medical contemporaries the wisdom of the same course.

It does not need the gift of prophecy to foresee, in the present trend of medical desire and practice, that the day will soon come when the hunger for advertising, induced by the unjust competition we have described, can no longer be restrained under the cloak of pretense and apparent respect for the law. When that time arrives, the profession will burst, like an irresistible deluge from the time-honored barriers of dignity and self-restraint and, in spite of county medical societies and the hopeless protests of the conservative, will vie publicly with patent-medicine men and quacks for the suffrages of the laity.

To delay this tendency, to direct and, if possible, to divert it, we suggest this method of medical advertising, at once both dignified and justifiable.

REVIEWS.

THERAPEUTICS OF INFANCY AND CHILDHOOD. By A. JACOBI, M. D., Clinical Professor of the Diseases of Childhood in the College of Physicians and Surgeons, Columbia University, New York; President of the Association of American Physicians; late President of the New York Academy of Medicine and of the Medical Society of the State of New York, etc. Published by J. B. Lippincott Co., Philadelphia, 1896.

While from what is included in the body of Dr. Jacobi's volume it might almost claim the name of text-book, the author has pre-

ferred to call it "therapeutics" only, wishing to emphasize the fundamental truth that everything in medical science should be both humane and scientific.

The greater portion of the book is devoted to diet, hygiene, and the administration and action of medicines.

The volume is divided into sixteen sections, in which feeding, general therapeutics, and the diseases of children are systematically and carefully considered.

The first section deals with the Feeding of Sick Children. There is no investigator who has given this subject more thorough and scientific study than Dr. Jacobi, and his results are so valuable it is to be regretted that lack of space has prevented the author from considering this subject more fully.

While the author considers dietetics a part of therapeutics, he lays down no universal laws for feeding, but rather certain conditions that must always be fulfilled in the treatment of individual cases. In considering the salivary secretion, it is important to know that the diastatic effect produced by saliva persists in the stomach from one to two hours, but ceases as soon as the secretion of hydrochloric acid begins in the digestive process. In the preparation of infant's food the author advocates under all conditions a plentiful addition of water, salts, and sugar, insisting, regarding the latter, on the selection of cane sugar. The substitutes for breast milk and their mode of preparation are briefly though carefully considered, while the remainder of this chapter is devoted to feeding in the diseases of children.

The second section, dealing with Treatment of the Newly Born, is the most complete of the volume. Indeed, we know of no other work on pædiatrics where this subject is more exhaustively presented.

In the section on Therapeutics the author emphatically condemns the expectant mode of treatment as not only unsatisfactory, but as oftentimes a positive danger to the patient. He further emphasizes the all-important principle that in treating local disorders in children the general condition of the patient should never be lost sight of.

In the treatment of Infectious Diseases he strongly advocates the use of belladonna in pertussis and the bichloride of mercury in diphtheria. In this connection it is to be regretted that the anti-toxine treatment of diphtheria should not have been considered

here rather than in the addenda. In connection with a careful statistical review, the combination of the mercurial treatment with the antitoxine is advised.

In the remaining sections the diseases of the digestive, genito-urinary, respiratory, circulatory, and nervous systems are carefully discussed, as are also the diseases of the skin, ear, eye muscles, and joints.

The addenda is devoted to such valuable additions to pædiatrics as have been made within a short time.

While the book is somewhat hastily written, the contained matter is so intelligently and systematically arranged that it can not fail to be of great value both to the student and practitioner of medicine.

(T. H. B.)

PEDIATRICS. THE HYGIENIC AND MEDICAL TREATMENT OF CHILDREN. By THOMAS M. ROTCH, M. D., Professor of the Diseases of Children, Harvard University. Published by J. B. Lippincott Co., Philadelphia.

A former secretary of the Section on Pædiatrics of the New York Academy of Medicine, when inviting the Fellows to discuss the subject on one occasion, wrote at the bottom of the notice: "*Don't begin at the egg; we know something.*" It is just the reverse with many authors. They presume that the readers know more than is really the case. This fault can not be charged to the author of the volume before us. With a fidelity to detail that is truly commendable, he has described every phase of physical life from the foetus to the adolescent. The book begins with a consideration of the infant at birth, and follows it through its various stages of development up to puberty. It is divided into eighteen sections. The first section is devoted to the consideration of the Infant at Term. The author believes that many of the great difficulties in diagnosis might be overcome by close observation of children in health. By noticing the peculiarities of infants and children in health, and by following these peculiarities through the different stages of their development up to puberty, the subject is discussed at great length and in detail, and one who has gone over these pages carefully should be familiar with a healthy infant.

The section upon Normal Development is much more extensive than is usually found in works on pædiatrics. The idea of estab-

lishing a standard of health and a clear picture of normal development is carried out. The importance of knowing at a glance whether it is normal for a child not to sit alone or not to stand alone, and to understand its actions, can be readily appreciated in nursery practice. As an instance of the attention to detail exhibited in this book, in this division is exhibited a colored plate showing the color of the excreta as found on the napkins in nineteen different conditions.

The chapter on Hygiene of the Nursery is exhaustive. In it are discussed intertrigo, seborrhœa capitis of infants, clothing, feet and shoes, sleep, outdoor air, nursery maids, school, defects of position, and vaccination. The subject of the artificial feeding of infants has awakened more interest in the minds of pædiatrics than anything in the last few years, save antitoxine. The importance of the subject can not be overestimated. Since the name of Dr. Rotch is so identified with the study of artificial infant feeding, one would expect an able discussion from his pen; nor will the reader be disappointed, for a more scientific and classical treatise has not come to our notice. The views and work of Dr. Rotch in this line are too well known to need comment.

Division seven is devoted to the study of the blood in infancy and childhood, and many valuable observations are recorded. Although in recent years much labor has been expended in examining the blood, the results have been unsatisfactory; yet, as our knowledge of the ætiology of disease advances, the importance of this line of investigation becomes more evident, and we believe brilliant results await the laborers in this field in the future.

The remainder of the volume—a little more than half—is devoted to the study of the diseases that would naturally be met with in the early periods of life. Maternal impressions and those cases indicating arrest of normal development which should occur during intra-uterine life are first taken up, then the diseases of the skin and the exanthemata. The study of the diseases of the nervous system is more extensive than that found in most works of this kind, and is especially deserving of praise.

The treatment of diphtheria consists (1) in attending to the hygienic conditions; (2) in the administration of remedies, either by the skin or by the mouth, to combat the toxine which produces the constitutional symptoms; (3) in local applications to the nose, throat, or larynx; (4) in operative measures to relieve obstruction

in the larynx. The most promising form of treatment is that comprised under what is called serum therapeutics. The effect of antitoxine on the albuminuria is still *sub judice*.

The consideration of the treatment of the diseases discussed is exceedingly brief, and very few medicines are recommended, because the author believes that the medical treatment of infants in the future will be largely dietetic rather than by means of drugs. Only those plans of treatment that have proved successful in the writer's hands are mentioned. He has avoided the familiar custom of naming all of the drugs or remedies that have been suggested to meet the indications, and permitting the reader to make his choice. In this he is to be congratulated.

Altogether, this book takes its place among the most scientific and classical works that it has been our privilege to read, and deserves a prominent place in the library of every physician who is called upon to treat infants and children.

The illustrations are very numerous and are well executed. The numerous colored plates are especially praiseworthy.

The typographical work is excellent, and reflects credit upon the publishers.
(G. H. M.)

MANUAL OF MIDWIFERY. For the Use of Students and Practitioners. By W. E. FOTHERGILL, M. A., B. Sc., M. B., C. M., Buchanan School in Midwifery, University of Edinburgh, late House Physician to the Simpson Memorial and Royal Maternity Hospital and Gynæcological Wards, Royal Infirmary, Edinburgh, etc. New York Publishers, The Macmillan Co.

The author states that this is a book for Edinburgh men, by an Edinburgh man, and that his aim has been to include in a brief but systematic restatement of the science and art of midwifery many important facts and numerous interesting theories in the Edinburgh school which have not yet found their way into text-books, so that just how successful he has been in accomplishing that aim we are not in a position to judge. We can only compare it with other works of the same class, and as the management of obstetrical cases in England differ somewhat from that taught in this country, a part of its practical usefulness to us is lost.

Chapter II contains recent theories on menstruation, ovulation, and conception. Chapters III and IV are devoted to the forma-

tion of the decidua, together with the modern views on the relation of the ovum to the decidua and on the development of the placenta. Ectopic gestation is quite fully considered, particularly as to its pathology, varieties, and causes, but the symptoms and diagnosis are not so carefully stated. While cœliotomy is advised if the diagnosis is made before rupture, the author thinks that colpotomy is rapidly growing in favor, and may modify the treatment, in which opinion we do not concur.

The chapters on the Mechanism of Labor are inadequate to the importance of the subject, particularly with the omission of the usual diagrams and illustrations showing the position of the foetus, flexion and extension of the head, etc. We do not agree with the author in the position he takes that in fine art drawing may be employed to express things as imagined and feelings as felt, and in science to represent things as seen and to aid the expression of thought, but not for the presentation of things as they are imagined to be. The diagrams are a great aid to the student in understanding this very difficult subject, and, as the foetus *in utero* has already been photographed by means of the X-rays, this position will no longer be tenable.

Pelvimetry is barely mentioned, while the value and methods of abdominal palpation are not suggested.

The chapter on Eclampsia is not very satisfactory. In the treatment no mention is made of veratrum viride, while pilocarpine, which has been almost universally condemned, is advocated. Symphyseotomy is mentioned, but is not given the position which it is now considered to hold among obstetrical operations. The chapters on the Management of the Puerperium and Puerperal Septicæmia are disappointing. The volume doubtless will be of more value to the student wishing to review the subject than of much practical value to the practitioner.

CORRESPONDENCE.

MILAN, MO., August 25, 1896.

To *the* Editor of the *American Gynæcological and Obstetrical Journal*:

SIR: In your August number I see a report of a case of Bullet Wound of the Pregnant Uterus.

I have a similar case to report in which operative procedures were not carried out:

Mrs. M., six months and a half pregnant, on November 19, 1895, was shot in the abdomen with a forty-one-caliber pistol ball.

On examination, the ball was found to have entered the abdomen one inch above and seven inches to the right of the umbilicus, six and a half inches above the anterior superior crest of the ileum, taking a downward and forward course.

There was complete suspension of foetal heart sounds, and patient stated that there had been no motion since moment of injury, when there was one strong movement.

As there appeared to be but little shock and no hæmorrhage, we decided to await developments.

Twenty hours later labor pains commenced, followed in an hour by a six-and-a-half-months dead foetus. Contraction was firm, and no more than normal amount of hæmorrhage.

On examination of the foetus, the ball was seen to have entered the head a little posterior to the anterior fontanelle, and could be seen projecting under the left orbit, whence it was easily removed.

As decomposition had already commenced, the uterine cavity was thoroughly irrigated with boric-acid solution.

While there was considerable evidence of inflammation, the temperature never ran high; it reached normal twenty-one days later, and, except for a few adhesions, the patient is none the worse for her injury.

G. S. MILNES, M. D.

TRANSACTIONS OF THE AMERICAN GYNÆCOLOGICAL
SOCIETY.

THIRD DAY.

May 28, 1896.

*Afternoon Session.**(Continued from page 402.)*

The President in the Chair.

CÆSAREAN SECTION: SUTURE OF THE UTERUS
VS. TOTAL EXTIRPATION.

BY HENRY C. COE, M. D., NEW YORK.

(Author's Abstract.)

The author apologized for bringing forward an old question which might seem to have been already settled, but it seemed to him that recent advances in abdominal surgery had enabled us to view it in a new light. His own experience with Cæsarean section (four successful cases), and the subsequent history of the patients, had led him to revise some of his former opinions, and to ask whether he would not have done better in three of these cases to remove the uterus instead of leaving it to become the source of future trouble.

In one instance it became necessary to perform the operation for the second time, and he had come to believe that the surgeon had no cause to congratulate himself on such an achievement. Aside from the sentimental view of the subject, he felt that it should be regarded as really a scientific error.

A case of total extirpation of the uterus following Cæsarean section for impossible labor was narrated. The patient entered the hospital in a bad condition, having been in labor at full term for eight hours. Her urine was loaded with albumin, and her pulse was rapid and feeble. Marked œdema of face and lower limbs.

Old hip disease, with two inches shortening, and ankylosis of the left hip, marked pelvic deformity, so that any method of delivery except Cæsarean section meant certain destruction of the child, and probably of the mother also.

Delivery by hysterotomy. It was decided to remove the entire uterus for the following reasons: 1. To complete operation more rapidly on account of the serious condition of the patient. 2. On account of the presence of double ovarian cysts. 3. Septic infection of uterus feared. 4. To prevent future impregnation. Operation completed in about thirty-five minutes. Gauze drainage *per vaginam*.

Almost complete suppression of urine during first twenty-four hours, with pulmonary oedema. After first week rapid convalescence, and patient discharged in good condition (though with albuminuria) in fifth week. Now quite well. Child did fairly well for a month, then succumbed to diarrhoea.

The arguments usually urged in favor of suture of the uterus were: 1. Operation simpler and less shock and danger of sepsis. 2. Patient's generative functions preserved. 3. Statistics greatly in favor of Cæsarean section as compared with Porro.

To this might be replied:

1. Suture of uterus takes more time, often considerable amount of shock, and sepsis only positively eliminated in elective cases, seen early, and operated upon in hospitals under most favorable conditions.

2. But symphyseotomy will in future be chosen in many of these cases, so that the Cæsarean operation will be performed more frequently in absolute indications, and often under less favorable conditions than formerly.

3. Statistical argument is a weak one, as many of the Porro operations have been done in most unfavorable cases. Again, a considerable percentage of fatal Cæsarean sections in America have been due to sepsis developed before the operation. The advantages of total extirpation are:

1. Rapidity of operation. 2. Removal of septic focus if uterus has already become infected or is suspected to be. 3. Removal of neoplasms or inflammatory conditions of uterus or annexa instead of leaving them to give future trouble. 4. The prevention of future impregnation in women incapable of exercising a proper choice in the matter, who, by reason of local or general pathological condi-

tions, would be exposed to great danger from a second operation, and would bring forth diseased illegitimate offspring, to be a burden to the community if they survived.

DISCUSSION.

Dr. GRANDIN: Under the indications laid down by the reader of the paper, as I understand them, I agree with him. I think that where we are dealing with an infected uterus, or with a uterus which contains fibroids, we are perfectly justified in doing a total hysterectomy instead of attempting to do the impossible, which is to cure the patient by doing a Cæsarean operation, followed by uterine suture. Beyond that I can not go. Given a case of pregnancy, which has passed the stage where induction of labor or symphysectomy is possible—healthy uterus, healthy tubes and ovaries—I do not think that we are justified in doing more than a Cæsarean section. The woman may conceive thereafter; it is none of our business. Our business simply is to deliver her of a living child, if possible, by a method which has been proved safe when the operation is done properly—that is, by a man who is familiar with the method of uterine suture, which is the only stumbling block in uncomplicated Cæsarean section. But if attempts have been made to do the impossible, to deliver her by forceps or by version, when the merest knowledge of the pelvis or foetal presenting parts should have taught the operator he could not do it, then possibly, since that woman may have been infected through these unscientific attempts at delivery, I will agree with the reader of the paper: take out the uterus in order to avoid what may mean death to the patient—sepsis. It is not our business to look into the future, and take out the uterus and ligate the tubes because the woman may at some future time become pregnant. Statistics bear me out that the repeated Cæsarean operation is safer; the second is safer than the first, and so forth. The art of which we are speaking (obstetrics) is gradually becoming a scientific one. In my lifetime it has not been such, whether from faulty teaching or because it is a part of medicine which is so poorly paid that men can not give the time to it that they do to others. But I venture to assert that the day is coming when so much attention will be given to the gravid woman, so much attention will be given to the operations which may be called for at term or beforehand, that Cæsarean section, done after a pre-

determined fashion, will be just as safe an operation as version or forceps when indicated to-day in the hands of the experienced. We must never forget, and it is peculiarly applicable here to-day, that there is so much gynæcology because there is so much poor obstetrics. In other words, sir, I am at variance with the reader of the Paper only, I trust, apparently. The point I wish to lay stress upon is that we, as medical men, are not called upon to remove a healthy uterus, or healthy tubes, and a healthy ovary from any woman because of the risk she may be subjected to should she become pregnant a second time.

Dr. HARRISON: This is, I think, as important a question as can be brought up for discussion. I am willing to agree with the reader of the paper in most of his points, but I think, on the whole, that I am more in harmony with the views enunciated by Dr. Grandin.

I do not think that we ought to remove the uterus and ovaries when they are healthy, looking to the future and future complications. Dr. Tucker, whom I assisted in a Cæsarean section in a woman subject to dystocia, operated successfully, and then two years afterward the same operation was successfully repeated. The woman is still alive. She still enjoys her uterus, and is a perfectly healthy woman. The main point, I think, has been beautifully brought out by Dr. Coe, and that is, whether the uterus has been infected or not. A great many of these cases that are brought before us have already been infected. I performed Cæsarean section some years ago when I should not have done it, and sewed the uterus up. The uterus was already infected, because one of my assistants was a man who was very incredulous about antiseptics. He did not breathe in the modern doctrines. Of course, if a man believes that, you may be absolutely sure if he handles a uterus he is going to infect it. We had made efforts at version, but had failed. We had also tried the high-forceps operation, in deference to the wishes of one of the gentlemen who was in consultation, and we had to resort to Cæsarean section. The uterus was infected, and the woman died. In that case if we had taken out the whole uterus probably the woman would have got well. So I think the whole matter turns on the point that Dr. Coe has laid stress upon—whether the uterus is infected or not. With our modern methods we need not infect the uterus. We know beforehand what the condition of things is. But sometimes it happens, as it did in this case, that you are brought into relation with a condition of

things that you knew nothing about beforehand, and you may have to try first to make attempts at version or forceps before you convince yourself that it is impossible to deliver the woman *per via naturalis*. In a case where there is the slightest possibility or probability of septic infection, I think the rule laid down by Dr. Coe is the correct one—you must remove everything.

Dr. NOBLE: I think all of us must agree almost entirely with Dr. Coe, particularly in the first proposition, that Cæsarean section will be called for rarely in the future as compared with the past, because symphyseotomy has largely taken its place in that class of cases in which we were called upon to do it most frequently. I think, also, that we will all agree heartily with Dr. Coe that when infection is present, or the probability of it is great, we should do a hysterectomy rather than the classical Cæsarean section; and also that when fibroid tumors exist to such an extent that there is no reasonable ground to believe that myomectomy could be done in the future that it is best, even though the woman is of childbearing age, to do a hysterectomy. On the other hand, personally, in a healthy woman who had a fibroid so situated that I believed after a few weeks or months I could do a myomectomy and leave her with intact sexual organs, I should not hesitate to do the Cæsarean section, and a few months later take out her fibroid and leave in her uterus and ovaries. I am not in accord with the speaker that it is ever our business to take out a healthy uterus and ovaries and tubes from a woman. Certainly we should not urge her into that position simply because she can not have a baby in the natural way. I have twice operated a second time, and both the women made very nice recoveries, and both of them enjoy very much the babies which they had by their second Cæsarean operation. One of these women had two other children by symphyseotomy after having had the two Cæsarean sections. I do not think it is our business to rob a woman of the powers of maternity; personally, I should not do so.

Dr. MURRAY: When we are called to a case of Cæsarean section it is proof that the woman can become pregnant, seeing that she is pregnant. Therefore the question of whether her tubes and ovaries are capable of being used must to a great extent be thrown out. If that uterus has been infected by previous attempts at delivery, it is an entirely different question. If the pelvis is infected, it throws out symphyseotomy, because it is no use to do a sym-

physeotomy with an infected pelvis. It is far better to give the patient the chance of Cæsarean section and a thorough hysterectomy, **not** one that leaves the cervix, because the cervix is the part that **first** gets infected. So I agree with the speaker thoroughly that, **if the** uterus is infected, we should do an absolute hysterectomy, **and not** leave any part of the uterus; but if the uterus is not infected, I do not think that we are called on as physicians to determine the ethical question whether that woman shall have the opportunity of becoming pregnant merely because somebody has got to **have** the trouble of doing a Cæsarean operation. She has the **right** to decide about her relations to her husband and her power of **having** children; we have no right to decide that. Another point is **that** if we have fibroids or other tumors complicating the pregnancy, and providing that uterus is not septic and the chances are **not that** the patient will become infected by leaving the uterus, I believe that we should leave the tumors, and let the patient recover from the Cæsarean section, and then do what gynæcology would give us the opportunity of doing in the way of curing her of the condition which caused it, whether it requires myomectomy or whatever other operation on the tubes and ovaries. We have no **right**, when called to deliver a patient, to immediately decide that we are going to do a number of other operations merely because we have got the abdomen open. We know what the statistics of Porro's operation have been in the past, and we know that when we **add** to that the shock of the Cæsarean section and the shock of **taking** out the uterus, the chances of saving the patient are very slight. Again, every one of us has been called to cases where **not only** the forceps, but version, and even perforation of the child's head, have been done, and although we may have said that the cervix **was** infected, it was not infected, because we know definitely that **the** perforation of the child's head and delivery by that means, even when cases have been long in labor, gives us the best statistics **that** we have in obstetrics in the way of delivery where there is a marked obstruction to the labor. Now, if the patient was infected before, why should we have these statistics? We do have them, nevertheless; so much so that it is one of the best arguments against either symphyseotomy or Cæsarean section that we can absolutely destroy the child's life and take it away, and yet have a mortality that is not equal to one per cent. In fact, in sixty cases where I have done that I have yet to lose my first case. If there is

infection you can demonstrate that there is infection; and I contend that if there is not we should leave the uterus; even though there be tumors and impediments to delivery, I believe we should leave the uterus alone and do afterward the work that is indicated, in order that the patient should be a healthy woman. Again, we have no right to decide the ethical point as to whether that woman should or should not have children.

Dr. HARRIS: There is no doubt that there are a certain number of cases of obstetrics, a certain number of cases of dystocia, in which we shall be fully warranted in removing the uterus, and I am sure, from the way this discussion begins, that the points will all be brought out. There is only one point on which I desire to speak. If I understood the reader of the paper, he said that in the case in which he removed the uterus the internal conjugate was two inches and three quarters. It was undoubtedly required in that case. I will do the reader of the paper the justice of saying that it was undoubtedly necessary for him to do a Cæsarean section in that case, but when he takes the view that it was necessary, because of very bad handling and anticipated sepsis, to remove the uterus, on that point I must beg to differ. To go back to the internal diameter of the pelvis, I am sure that those who practice obstetrics will agree with me that two inches and three quarters represents an internal conjugate through which hundreds of children are born alive. I delivered in one instance a live child through an internal conjugate of less than two inches and three quarters, in which a somewhat larger child in the next pregnancy declined to pass through the superior strait, and was attended by a skillful practitioner, who was required to perforate the head and mutilate the child in order to deliver. That case illustrates that it is a question of passage and passenger. I have a case of symphyseotomy, never exactly reported, but once mentioned to the Academy of Medicine in New York, in which the internal conjugate was two inches and three quarters, in which I performed symphyseotomy to deliver the child. That was a year ago last December. About six weeks ago our house physicians delivered that same woman of a living baby weighing one pound and a half less than the one which I delivered. Before she left the hospital I took the precaution of measuring the internal conjugate again. I asked two physicians who were associated with me to do the same, and I have only to tell you that the first measurement of two inches and three quarters was confirmed

by the average of the three measurements. I am particular to mention this matter, because I certainly think that, if the reader of the paper bases his statements on this line of two inches and three quarters, he is going beyond the limit. There are entirely too many women walking through our streets who have pelves reduced to that dimension, and who, through having smaller children, manage to run the gauntlet pretty well.

Dr. DAVIS: There is unanimity among us regarding Dr. Coe's position that the proved infected uterus is a source of danger after delivery, and he has simply done in this operation what I have been expecting and hoping to do had the opportunity presented itself to me. He has honored me by reference to recently reported cases, and, as there has been and is misapprehension apparently as to certain conditions under which it is right to stop the power of procreation, it is my duty to make clear the grounds upon which Dr. Coe and I stand. Let me revert a moment to the history of cases, and I may say that experience with patients as well as with pelves is absolutely essential in performing the full duty of the obstetrician. It was my fortune to perform in succession three abdominal deliveries, in each of which labor had been induced, in each of which an attempt had been made under anæsthesia to bring the head of the fœtus to engage in the pelvis, and in each of which the consent of the patient had been obtained and her request had been made that further procreation be rendered impossible. I hold it to be the right of a woman, who is in a condition where a natural delivery is impossible, to make the choice, if the risk of stopping procreation be no greater than the risk of continuing it. And further, I find by observation of hospital cases that very many patients expect that any obstetrical operation means sterility, and that they welcome oftentimes and consent willingly to such operation, because they believe that they will never again be exposed to the danger which threatens them. So that in each of these three cases the woman, having been told that it was possible to continue the power of procreation and possible not to continue it, elected that the power of procreation should not be continued. That, I hold, was her right. When the gentlemen who have spoken in criticism of this paper said that it is not the province of the physician to take the ethical ground and to decide, they said what is perfectly true; but it is his province to give to the patient the right of selection. Now, it has occurred to me to apply the

principles of modern hysterectomy, as originally brought forward by Schröder and Dr. Baer, to the pregnant uterus, in cases in which it is not desirable, by volition of the patient, to continue the power of procreation, and the results of operative work in the cases have been interesting in this far, that the hysterectomy proceeded as smoothly as in the non-pregnant patient, and even more smoothly; that, strange to my mind, lactation continued, one of my patients having nursed two babies, and each of those three women is now living and nursing her baby and is in good condition. So that if it is right at the woman's request to stop the power of procreation, then we have in hysterectomy, with the intrapelvic treatment of the stump, a method of surgical delivery leaving a clean pelvis and the woman nursing a healthy child. I trust I make clear the position I take, and Dr. Coe does me the honor to join me in it.

Allow me to detail another experience: A few years ago there came to the Polyclinic a respectable married woman who had lost four children in difficult labors, and requested abdominal delivery of a large child. This was done by suture of the uterus. No mention was made to me of the fact that she desired to avoid future maternity, and hence the full power of procreation was continued. Shortly afterward she came to me again, greatly disgusted, and stating what I believe to be true in the majority of ignorant women, that they think an obstetrical operation is to result in sterility. This woman was much surprised to find herself face to face with the problem of delivery. I sent her to Dr. Baer, who operated at her request with hysterectomy, with intrapelvic treatment of the stump, with perfect success.

I desire also to call attention to the point made by Dr. Harris. We must be guided by experience, and no man should take the responsibility of abdominal delivery who has not put the matter to the test of induced labor, with a faithful attempt to bring the head to engage in the pelvis, if necessary, under anæsthesia.

Dr. BOLDT: The previous speaker has voiced my sentiments. I wish only to add that if the patient has not already decided what her choice shall be, and if it is left to me, I should invariably, when the indications are positive, remove the uterus *in toto*. I would also say that if myomata complicate the case, I should invariably advocate the removal of the uterus in such condition.

Dr. GARRIGUES: I want to protest against the words of my friend, Dr. Davis, that the woman should have a right to ask that

we should make her sterile. I can not admit that at all. We must leave that to Nature, or to God, or to whatever you believe in. I do **not** think that the woman has a right of that kind. But she may be **in** such a poor condition that we, from the scientific standpoint and the moral standpoint, find that we are not only warranted, but that **it** is better that we should make her sterile. I have such cases in **view** as those to which Dr. Coe alluded—advanced tuberculosis, etc. But it is not only the right of the woman that we should have in **view**. I think we should also keep the right of the child in view, and a child has a certain right not to be born of a woman in an advanced state of tuberculosis. Under such circumstances I think the doctor can seriously take into consideration an operation under which she becomes sterile. I do not think we can get away from the **value** of statistics. Only a few years ago the statistics of Porro's operation showed a mortality of fifty-seven per cent.; then it went **down** to fifty per cent.; according to the latest figures, it has been **brought** down to thirty-eight per cent.; but still it has a much **higher** percentage than Cæsarean section. Even the common statistics for Cæsarean section in all sorts of hands shows that the **percentage** at the present time is not twenty-five per cent., and in good **hands** it is only eight per cent. I think these figures ought to have **some** weight, and we had better perform the safer operation of suturing up the uterus. In case we decide to make a woman sterile, I think we ought to do that in a safer way than by taking away her uterus. I think all that would be needed would be to take out the ovary.

Dr. COE (in closing) said: I am very much gratified by the result of the discussion, quite as much by the adverse as by the favorable comment. Regarding what Dr. Harris said, I did not lay any particular stress on the conjugate of two inches and three quarters; that is a side issue. She had an obliquely contracted pelvis, with such extreme contraction of the outlet that any question of manipulation could not be entertained. The head could not be engaged at all. Of course, I frankly admit that children have been born spontaneously through pelves which, looking merely at the conjugate, would have been cases of Cæsarean section. Dr. Garrigues alluded to the right of the child in these cases. I think that is a very important point, which we think very little of in hospital practice. We report our case of Cæsarean section, and touch very lightly on the condition of the child. The child has very little

chance from the first, and in the first delivery it is generally a good deal less than the second. With regard to the ethical side of the question, I did not lay very much stress on that. I certainly did not intend to convey the impression that I would, without the patient's permission and in a reckless manner, remove her uterus, as we used to remove ovaries a few years ago. There are very few of us, probably, who were not guilty of removing ovaries without saying anything to the patient about it. We thought nothing about it at the time, and I think we have improved very much in that respect. In the case reported I found a double ovarian cyst, which I knew would require a second operation. In the second place, the patient's pelvis was hopelessly deformed. In the third place, the patient's condition was alarmingly bad during the operation, and rapidity of operation, lessening the shock, I consider an important point. A further reason for removing the uterus was that I had a distinct understanding with the mother and father of the woman and the father of the child beforehand. I considered her life was in danger. They were anxious to have a living child, and I told them I did not think the mother had any chance at all. Her recovery was a surprise to me. As I said before, I think we are making statistics every day, and I do not think the statistics of the old Porro operation can be considered at all. When you come to consider Dr. Baer's operation, how can you compare the statistics of that with the old one or a modern cœliotomy? Certainly I do not think that twenty-five per cent. is a very low rate for Cæsarean section; it is not in the category of simple and easy operations. I will only say in conclusion that I hope I have made it clear that it was not too radical in this case. I did not start out with the idea of removing her uterus. I endeavored to lay down what might be called absolute indications, but I think in an operation of this kind we must look into the future, and taking those cases—not married women, not those who wish to have the chance of future pregnancy preserved, but illegitimate, miserable subjects, whose children are certainly doomed to death—I think we are justified to some extent in using our own judgment.

Dr. GRANDIN: One word before this discussion is closed. We were damned enough at the recent Atlanta meeting. I want to call the Secretary's attention to that statement that we have taken out ovaries that should not be taken out. We do not want to be damned

any more by the general surgeons for doing work that we have never done, and I must move that the Secretary recall that.

Dr. COE: The Secretary only speaks for himself.

Dr. HARRISON: I would like to speak of one thing: Dr. Coe alluded to coeliotomy. Now, Mr. President, I wish to protest against that innovation—the introduction of that term. I think this is a good opportunity, inasmuch as the speaker has just used it. In the first place, I object to his pronunciation. If he is going to pronounce it, let him pronounce it correctly. He ought to pronounce it *keleotomy*. Every single one of the scholars uses the Greek *k* instead of using *c*. It shows that a man who uses it is not a Greek scholar.

The PRESIDENT: The Chair must call your attention to the fact that any reflection on the educational advantages of a member borders on a breach of decorum.

Dr. HARRISON: Why should he introduce this innovation of coeliotomy for laparotomy? *Laparo* is used in Homer, as I know very well, for the groins, but it is also used for the soft parts between the ribs and the pelvis. Laparotomy expresses the exact meaning that we want to convey—the soft parts between the attachment of the ribs above and the pelvis below. The old anatomists used that term *laparo* in that sense. We had a good term—laparotomy—and why should we introduce this modern term of coeliotomy, which from its derivation means the abdominal organs, but does not mean the soft parts?

The PRESIDENT: For the purpose of adding to Dr. Garrigues' suggestion in the matter of statistics upon this question of total extirpation of the pregnant uterus, I would like to say that if the doctor will look it up he will find there is a vast difference now. For instance, I can offer him four cases of pregnancy operated on by total extirpation that gave as smooth a recovery as he ever witnessed from an extirpation of a fibroid—two of them between six and seven months, and the other two at term. I merely suggest that this matter be looked into for the future, because this unquestionably is a point of vital importance—this whole question of total extirpation *vs.* Cæsarean section—and much light will be thrown upon it if the gentlemen will give their attention to it. Dr. Ségond desires to be allowed to express his thanks to the Society for its action in electing him an honorary member.

Dr. SÉGOND: Gentlemen, I desire to thank you personally for

the great honor you have done me in electing me an honorary member of your Society. (Applause.)

DRAINAGE OF THE STUMP AND CONNECTIVE TISSUE IN ABDOMINAL HYSTERECTOMY.

BY HENRY T. BYFORD, M. D., CHICAGO.

(Author's Abstract.)

In abdominal hysterectomy, whether the uterus was amputated or removed *in toto*, the author claimed that provision should always be made for drainage of the stump or connective tissue. This may be done by leaving the stump exposed and draining from above, or by shutting off the peritoneal cavity from the stump and draining through the dilated cervix, or by closing the cervical cavity and draining through an opening made in the anterior vaginal wall between the cervix and bladder.

In favor of this method he reported sixty-eight cases with three deaths, a mortality of 4.31 per cent. These were divided, according to variations in the method, into the following groups:

1. Forty-six cases in which the upper end of the stump was turned into the vagina through an opening made in the anterior vaginal wall. (Vaginal fixation.)
2. Eighteen cases in which the stump was left *in situ*, but gauze was carried from it through the opening in the anterior vaginal wall. (Vaginal drainage.)
3. One case drained above by a drainage-tube.
4. Three cases of total extirpation with drainage into the vagina.

DISCUSSION.

Dr. HARRISON: After supravaginal myomectomy, one of the first men in this country to treat the stump by closing in the peritonæum was Dr. Goffe. About the same time Dr. Dudley did the same operation. But for historical justice I wish to call attention to the fact that the first man in this country, so far as I know, that ever performed that operation was Dr. Emmet, in an operation he performed at the Woman's Hospital, in 1878, for myomectomy, where he left the cervix behind, but closed it in in that way, and covered the stump with a layer of peritonæum, which he got from

the bladder. The only defect in the technique at that time was the fact that we did not make provision for drainage. If we had, I think we would have had a successful result. That patient died some time afterward of infection; but the point I wished to make was that, as a point of interesting history, the first operation, so far as I know, that was performed, covering in the stump by peritonæum, was performed by Dr. Emmet in 1878.

Dr. NOBLE: In the first hysterectomies, or rather supravaginal amputations, I put no ligatures in the cervix, but put in a little piece of gauze. I never saw any drainage come down, and left the gauze out. I still put no ligatures in the cervix, and had no trouble. Some time afterward, following the fashion of my friends rather than because I saw any need of it, I began stitching up the cut-off cervix, and I do that still. First, I sewed it up with silk. Those cases made a good primary recovery, but in a number of them the ligatures became infected. My opinion is, that there is no use of putting those sutures in, and I concluded to stop doing it. I never saw the cervix bleed after it was ligated properly, so my opinion is that the careful drainage which the speaker has provided for is unnecessary, and if he will simply leave it out the case will not only get well just as well as before, but a little better.

Dr. BAER: I do not know that I have anything to say. We do not want to discuss priority. I think I would like to state this for the benefit of my colleagues—whom I honor as much as any man can honor and respect coworkers, and those others throughout the country who are not members, who have been talking about methods and priorities during the last four years, since I read my paper in 1892—that I do not think there is any man who has less desire to take away from his fellow any credit or honor in the priority of any method than I have. Certainly, in the presentation of the paper in which I described the method, I had not the slightest desire not to give credit to any one who had been in the field before me. The only methods that I knew of that approached it were those of Schröder, to whom great honor is due for having worked in that field as he did, and of our fellow doctors, Goffe and Dudley, who worked in the same direction, and all honor to them for it. Dr. Byford also was mentioned, who did the method that he described to-day previous to the operations which I described. He was also mentioned in my paper—mentioned, it is true, to cast aside, because I believed that what I was doing was better. Now, since that time

there has been a great discussion all over the country, and all over the world, about hysterectomy, and a great many more hysterectomies done. The mortality has been lessened greatly, and it has brought up that question of priority, so that almost every one who does hysterectomy may do it a little differently, and a great many have described what they call "modifications." My friend, Dr. Goffe, recently published a paper in which he claimed that he had done that operation which I described before. I had replied to that previously. Dr. Eastman, of Minneapolis, in a number of very personal papers, has attacked me for having got some credit because I happened to write that paper and describe that method. I have not replied to any of them, because I do not care. I believe with Longfellow, who said, "So that the book is written, no matter who has written it." If there is any good in what I did or in what was done by the profession, the profession and humanity have it, and let it go. (Applause.)

MYOMECTOMY; FATAL SECONDARY HÆMORRHAGE WITH RISING TEMPERATURE.

BY HENRY D. FRY, M. D., WASHINGTON, D. C.

(Author's Abstract.)

In spite of the close attention given to the technique of abdominal surgery, a large proportion of the fatal cases result from primary or secondary hæmorrhage. It is now known that many of the fatal terminations attributed to shock are in reality due to internal bleeding.

When the complication is evidenced by pronounced symptoms of loss of blood, the case is usually hopeless. Successful interference depends upon prompt action; therefore the early recognition of secondary hæmorrhage is of prime importance.

The object of this brief communication is to direct attention to the aspect of the subject, and to report a case where the condition was overlooked on account of the absence of a symptom supposed to be essential.

After myomectomy of simple character, the pulse and temperature began to rise on the second day. The rapidity of the pulse gradually increased, and the temperature ranged between 101° and 102° until the third day, when the patient died.

Post-mortem examination revealed the abdominal cavity full of blood. There was no peritonitis or any condition to account for the rise in temperature. Subnormal temperature is expected to result from internal hæmorrhage when sufficient in degree to threaten life.

The questions for discussion are:

1. What value can be placed upon the temperature range as an index to the existence of internal hæmorrhage?
2. Does the nature of the hæmorrhage influence the temperature differently—*i. e.*, whether it be profuse and quickly fatal, or less free and continuous, but slowly fatal?

DISCUSSION.

Dr. GRANDIN: This paper of Dr. Fry's has a very important bearing, and I do not think it should go undiscussed. If I remember aright, one of the points he desires discussed is as to whether temperature is an index of the presence of hæmorrhage or not. Now, in order to give those present a chance for criticism—they evidently do not feel like criticising Dr. Fry, and they may not have the same feeling about me—I am going to take the ground that temperature is no index of the existence of hæmorrhage. In other words, in my opinion, temperature should not be looked at so much, and the pulse should be looked at more, not alone as an index of existing hæmorrhage, but as an index of existing septic infection. I should feel that, so long as the pulse bore a proper relation to the temperature rise, the patient was neither bleeding internally nor did she have the other complication, which is the septic one. A very rapid fall of temperature, provided it be associated with rapidly increasing pulse rate, is to me a guide to intra-abdominal hæmorrhage. And yet the rule is not a positive one, because I have seen in connection with primary rupture cases of ectopic gestation a normal temperature and a normal pulse, and yet on section have found free bleeding and old clots. It is the pulse we ought to watch, not the temperature. I think I was taught wrong. At the time I was taught great stress was laid on the boon to humanity afforded by the thermometer, and, as a man who operates and also does a certain amount of obstetrical work, I want to say that I think it is not the temperature, but the pulse.

Dr. BALDY: The doctor will not be jumped on so much as he

anticipates. Unquestionably, we have long since recognized the pulse as the prominent feature. It is exceedingly difficult, even with the pulse, to tell whether you are having hæmorrhage or not. It makes little difference what you use, there are certain cases where it is almost absolutely impossible to say whether the patient is bleeding or not. If she is bleeding from a spurting artery, and you do not reopen, she will die. The pulse is the best symptom of all others combined, and yet even it will not help us out with a certain number of cases. I believe the best thing to do is to leave them alone.

Dr. COE: I can hardly subscribe to that last statement of leaving them alone. I had a case where I could not make up my mind whether the patient had bleeding, and I felt the thing to do would be to cut the lower suture or two; but, as I never succeeded in saving but one patient by the secondary operation, I shrank from doing it. The autopsy showed the abdomen full of blood. I agree that the thermometer is no indication of active hæmorrhage. I have seen the temperature go up to 104° within a few hours if an accident occurred (rupture of an ectopic gestation), but I have seen it fall to 96° after abdominal hysterectomy. I wish some gentleman who has had experience would state how to judge of hæmorrhage under those circumstances where you have simply got to go on general principles. My disastrous experience was in such a case—she had good pulse, good color, good strong voice, and yet died.

Dr. SMITH: My experience is also in the line of the last two or three speakers, and that is, that the temperature is no guide whatever to hæmorrhage, but the pulse is. I think the suddenly rapid pulse when the patient is doing well otherwise is the best evidence of hæmorrhage we can have.

Dr. WARD: It seems to me that one of the important questions here is if we can determine the cause of the rise in temperature. That we can not do. But in this case that has been narrated the hæmorrhage was gradual, and the rise of temperature accompanying the rapidly failing pulse is what obscured the cause, perhaps, in the gentleman's diagnosis. In a case of a rapid hæmorrhage we would expect a falling temperature and a rapidly increasing pulse. In a gradual hæmorrhage we would expect a gradually increasing rapidity and smallness of the pulse. The temperature we have not been in the habit of taking into consideration. We do

not expect any particular change of temperature in a gradual hæmorrhage. The three questions which occur to us for differentiation are between shock, sepsis, and hæmorrhage. Now we hear a great deal about delayed shock. I think that is a term which is used without sufficient ground. In a case where after operation the patient has entirely recovered from the anæsthetic, and the pulse is comparatively good, I think we may exclude the question of shock. If after that the pulse increases in frequency, then the question arises between sepsis and hæmorrhage. If with the increasing rapidity of the pulse the temperature increases, the suspicion of sepsis immediately arises in our minds. Now, there is one thing which I have heard, but which I really can not state as a fact, because my observation has not been sufficiently extended, that in a gradual hæmorrhage into the peritoneal cavity there is apt to be an increase in temperature because of the efforts of the peritonæum to digest the blood. That would only occur in a gradual hæmorrhage. But the only two questions to be decided would be between sepsis and hæmorrhage.

Dr. DAVIS: The pathology of ectopic gestation and post-partum hæmorrhage throws a little light on this question. In rupture of ectopic gestation the slow extravasation of blood is often accompanied by a progressive rise of temperature, which may be accounted for by the effort at digestion of the blood. In post-partum hæmorrhage, when the cervix is occluded by a large clot, the woman may bleed into her own uterus to a considerable amount, and she will have accompanying that hæmorrhage a progressively increasing pulse and a slow rise of temperature. It is only in the case of a sudden hæmorrhage that a rapid fall of temperature occurs. If I may offer a suggestion as to differentiation, it is the fact that in abdominal sepsis the temperature falls while the pulse rises; while in progressive hæmorrhage from the uterus and its annexa in ectopic gestation and slow post-partum hæmorrhage there is a rise of temperature, accompanied by a progressive rise of pulse.

Dr. FRY: My reason in bringing this case before the Society is because I was completely puzzled by it. I had counsel, and they were also unable to decide, and it was very unfortunate that it was so, because it was one of those cases where, if the abdomen had been reopened, I think the woman could have been saved. I understand from the remarks made here that there is a great deal of un-

certainly in regard to the temperature in hæmorrhage, and that it will rise in cases of internal hæmorrhage. I think if that be true our text-books need overhauling, because I could not find a single reference to that fact. I have looked all over our recent works, and some of them did not refer to temperature at all; but where any reference is made, it is invariably the statement that the temperature is subnormal. Of course, if you have a profuse hæmorrhage, you would expect a subnormal temperature. In this case the relaxation of the uterine attachment in the grasp of the ligature allowed a slow oozing, and it was twenty hours before there was sufficient loss of blood to cause death. As the text-books still teach, I looked upon a drop of the temperature as an essential factor in internal hæmorrhage, and it was that point alone which prevented me from interference in this case. I think the fact ought to be brought prominently forward that we can have a rise of temperature with fatal internal hæmorrhage.

Dr. CLEMENT CLEVELAND: I have here an instrument which I have used for three or four months, which has been shown to a number of persons, and it has been suggested that I show it here. It is an electrode that I attach to silk ligatures in vaginal hysterectomy. Of course, for those who use forceps exclusively, or catgut, it is not necessary. I almost invariably ligate my uterine arteries, and it occurred to me some time ago to use this electrode to burn my ligatures. It consists of two copper wires which are carefully insulated by silk thread down to the point of a platinum loop which is attached to the end. The electrodes are tied into the ligature at the time of the operation, and thirty-six hours afterward I attach the three-cell battery. Sometimes it is not necessary to use more than two cells. Before putting on the heat I produce a little tension on the ligature, so as to be careful not to burn the tissue too much; and just as soon as the ligatures become a little looser the electricity is cut off, so that there is hardly any danger of doing any harm by the heat. I have done it quite a number of times in the past three or four months to my satisfaction. I have sometimes applied as many as eight of these electrodes.

Dr. GRANDIN: There is no objection to this that I can see, but I would like to ask a question: As I understand the gentleman, he uses this on the uterine arteries?

Dr. CLEVELAND: Yes, and the ovarian too.

Dr. GRANDIN: Do you find any difficulty, working through the

vagina, in putting this platinum loop between your stump and your silk ligature?

Dr. CLEVELAND: I put it down over the end of the ligature first, and carry it down to the tissue, and merely tie my ligature.

Dr. GRANDIN: You tie your stump, including your platinum loop?

Dr. CLEVELAND: Yes, sir.

Dr. GRANDIN: Do you find any difficulty in doing it?

Dr. CLEVELAND: It depends on the size of the vagina. In a very small vagina, of course, there would be some difficulty, but I have had no difficulty so far.

WOMAN AND HER DISEASES V/S. GYNÆCOLOGY.

BY HENRY P. NEWMAN, M. D., CHICAGO.

(See page 417.)

SURGICAL INJURIES TO THE URETER.

BY J. MONTGOMERY BALDY, M. D., PHILADELPHIA.

(See page 462.)

DISCUSSION.

Dr. BACHE McE. EMMET: I have had no experience whatever in this operation of transplanting the ureter into the bladder, and my only case of making an anastomosis is scarcely enough experience to justify remarks which would carry value. When that incident occurred to me, and I made the anastomosis—with excellent success and good subsequent recovery—it gave me occasion to look up the matter a little bit to see what had been done in that line, and to study the experiments. The occasions in which the connection had been made were so few that little had been determined. I have feared always that when that artificial opening was made in the bladder there was a possibility of infection of the kidney subsequently, especially if there has been any degree of cystitis developed, which is possible as soon as the bladder is interfered with in its normal functions. I should say, in most of those instances where we make anastomosis directly in the lining in the bladder, that we should have also a backward pressure. I believe from the inspection we are able to make in many cases in the female, where

we have had fistulæ to deal with at the base of the bladder, that there is a valvelike opening at the mouths of the ureters. The pressure from above created by the accumulation in the kidney is sufficient to overcome that slight valve. I think that the connection with the passage should be made in a slanting way is a very wise provision, and will give firmer hold while the union is taking place. In operating, keep in mind where the ureter lies and its normal course; always have in mind that position and the angle at which it goes to the bladder, and if the precautions are followed which were once recommended by Dr. Kelly—that in case of operation in that region we shall first pass the ureteral catheter on both sides—I scarcely see any danger of hurting them.

Dr. BYFORD: I can hardly agree that it is surgical in all cases that we should tack the ureter to the bladder; in those cases in which it is necessary to draw the bladder at a considerable distance from its original site, it seems to me it is much more surgical not to do that. It is liable to interfere to a certain extent with the function of the bladder. If we can be shown that anastomosis of the ureter is safe, and will accomplish the purpose, more surgeons will do it in that way, rather than run the risk of subsequent trouble. The method devised by Sgobel, of lateral anastomosis—I do not remember the name by which he calls it—has been done by Kelly, I think; and, apparently, from the way in which it is performed (the end being put in a lateral opening and pressed in for a considerable distance and sewed in), I think there is little danger; and if it can be proved that this will succeed as well as the other, I think it is certainly more surgical.

Read by title:

IN MEMORIAM: ROBERT BATTEY, M. D., LL. D.

By THADDEUS A. REAMY, M. D., CINCINNATI.

(See page 443.)

The PRESIDENT brought to the attention of the meeting, at the request of a member of the Society, the question of the advisability of adopting a Memorial to Congress in opposition to a bill now pending prohibiting vivisection within the boundaries of the District of Columbia.

After some discussion, on motion of Dr. Grandin, seconded by Dr. Baldy, it was

Resolved, That the American Gynæcological Society condemns the bill pending in Congress, on the ground that it tends to restrict experimentation, which in the past has redounded to the interest of humanity, and which in the future will do the same, and the Secretary is directed to transmit a copy of this resolution to Congress.

The Vice-President being in the Chair, Dr. DAVIS moved that the American Gynæcological Society presents to its retiring President, Dr. Polk, its thanks for his very efficient and courteous conduct of this session. Seconded and unanimously carried.

On motion, a vote of thanks was extended to the retiring Secretary, Dr. H. C. Coe, for the time and energy which he has devoted to the interests of the Society as its Secretary.

On motion of Dr. Davis, a vote of thanks was tendered to the members of the Society resident in New York, and to the New York Obstetrical Society, for their generous hospitality and the delightful treatment which had been accorded to visiting members.

President POLK then addressed the meeting, thanking the members of the Society for the honor they had conferred upon him, and introduced President-elect James R. Chadwick, M. D., who, after briefly reviewing the growth of the Society, pledged his best efforts to keep up its traditions, and to make the next meeting as successful as the present.

Adjourned.

THE STATUS OF GYNÆCOLOGY ABROAD.

SWEDEN.

A Case of Ventrofixation, with Subsequent Delivery of Twins.

Dr. LINDFORST (*Upsala Läkareformings Förhandlingar*, May, 1896) cites an interesting case of prolapsus uteri which occurred in a girl of fifteen years, and before she had begun to menstruate. This was the immediate result of lifting a heavy bundle of hay. The prolapse was complete, but she took no means to return the organ for several years. Then she entered a hospital, and had what was termed anterior and posterior colporrhaphy performed. The uterus

remained in place but a short time, and two years later she came under the observation of the author.

The prolapsus was complete, and the mucous membrane was much indurated and hypertrophied. The external os was so small that it could scarcely be detected. The uterus was suspended by the method of Leopold, and a perinæorrhaphy by Tait's method. The patient made an uneventful recovery; the uterine sutures, of silk-worm gut, were removed on the fourteenth day.

Eleven months later the patient was again seen, and found in good condition and pregnant seven months. The fundus uteri was found three finger breadths above the umbilicus. The cicatrix of the abdominal wound was enlarged in length and breadth, and distinctly pigmented. In the middle of the cicatrix the fixed point could be distinctly seen. The bladder was drawn up high, but caused her little inconvenience. Shortly before term she entered a lying-in hospital in labor. The liquor amnii escaped early and the head engaged, but the cervix remained tense and unyielding. The woman's strength began to fail, and it became necessary to deliver. Accordingly, the author made three deep incisions in the cervix, and delivered with forceps. Another sac then pressed down into the vagina, and it was found to contain another foetus. A profuse hæmorrhage occurred from the cervix, and it was necessary to resort to saline injections; but the patient quickly recovered, and passed a normal puerperium. Both children lived, and it was found that the uterus remained in position.

The author attributes the difficulty in delivery to the indurated cervix. He does not advise ventrofixation for retroversion.

SWITZERLAND.

The Result of Alexander's Operation in Regard to Subsequent Pregnancy and Parturition.

Dr. S. STOCKER, of Lucerne (*Cent. für Gyn.*, May 23, 1896), considers the time opportune to report the influence of Alexander's operation upon subsequent parturition, since so many difficult labors have been reported as the result of vagino-fixation. The author has shortened the round ligaments in thirty-seven cases. Of this number, fifteen were single women, widows, and women past the childbearing period. One woman died shortly after the operation. Of the remaining twenty-one cases, ten became pregnant after

the operation, three of them twice; one aborted in the second month, and the remaining nine were delivered at term. In order to note the condition after confinement, the author examined eight of the patients at times varying from two to six months after delivery.

His conclusions are that shortening of the round ligaments does not interfere with conception, but may influence it favorably. Some of the nine confinements were normal, with a duration of labor varying from two to twenty-two hours. These figures were given by the patients themselves, and no claim of accuracy is made for them; but they compare favorably with those of patients who have had no operations. Two deliveries had to be accomplished with forceps. One was a generally contracted pelvis, and in the other case the os was very rigid and dilated very slowly, and the attending obstetrician states that there was no unequal dilatation or contraction or other abnormality.

The author's experience, while not very extensive, convinces him that no complication during parturition may be feared after Alexander's operation.

All of the women examined after delivery showed the uterus to be still up in position.

The author is satisfied that, in order to secure a permanent fixation of the ligaments, it is unnecessary to suture them upon the fascia of the external oblique muscle. Kocher's modification was only employed in the first case. In the other nine cases the round ligaments were sutured in the simplest manner to the pillars of the external inguinal ring and to the divided edges of the inguinal canal.

AUSTRO-HUNGARY.

The Transplantation of Ovaries.

Dr. KNAUER (*Cent. für Gyn.*, May 16, 1896), under the direction of Professor Chrobak, has conducted a series of experiments upon rabbits. Four rabbits were anæsthetized with ether, and under strict aseptic precautions their ovaries were removed and transplanted to other parts of their bodies. They all stood the operation well, and lived for varying periods afterward.

In two rabbits the ovaries were planted as follows: One in the cornu of the uterus and the other between the fascia and muscles of the abdominal wall. Unnecessary handling of the ovaries was

avoided, and the sutures were passed through the covering and not into the ovarian tissue.

Since the operation three of the rabbits have died of intercurrent disease. The last one was six months after the transplantation. The post mortem showed the ovary in the abdominal wall to be atrophied, but still living, and readily distinguishable. The ovary implanted in the cornu-uteri had not atrophied to the extent of that in the abdominal wall. Upon its surface two Graafian follicles were readily recognized. One was of unusually large size, and looked like a vesicle filled with blood. The microscopical examination showed that this ovary had been abundantly nourished and was performing its function. In the stroma were imbedded a large number of follicles in varying stages of development. In all of the rabbits thus far examined the results have been the same—namely:

That ovaries in rabbits can be transplanted to other localities remote from their normal places.

That they can be successfully implanted in muscular tissue as well as in the peritonæum.

That ovaries thus implanted not only are nourished, but they perform their functions—viz., to develop, mature, and expel ovules.

If transplanted ovaries can be nourished and perform their function for a long time, and if ovaries can be transplanted from one individual to another, will be the subject of another report.

A Dermoid Cyst of the Ovary, with Unusual Contents.

Dr. EMIL KNAUER (*Wien. klin. Wochenschr.*, June 18, 1896) presented the specimen and reported a case of dermoid cyst with unusual contents at the meeting of the Imperial and Royal Medical Society at Vienna. The specimen came from a woman of thirty years. She had had six children, and her labors had been normal.

Two years ago she first noticed a tumor in the lower part of her stomach, and began to feel pain in the right side of the stomach and in her sacral region. This pain at the time of the operation was intense.

By examination, a tumor the size of a child's head was felt upon the right side. Fluctuation was made out. Because of the hardness of the tumor and the pain that accompanied it, a diagnosis of probable dermoid cyst was made.

Upon opening the abdomen, the tumor was found to be a der-

moid cyst of the right ovary. It arose from a moderately long pedicle, and was adherent to the omentum. The pedicle, which was formed by the ovarian ligament, was twisted upon itself three times. The cyst was removed without difficulty, as was the left ovary, which had undergone cystic degeneration. The patient made an uneventful recovery.

The tumor consisted of a dense sac filled with perfectly symmetrical spheres, surrounded by a yellowish, turbid fluid and a coil of hair.

The balls varied in size from a pea to a nut. They had a smooth, shining surface. They were soft and friable. Microscopically, these spheres were found to consist of epithelial cells, with a small amount of fat interspersed. The cyst wall consisted of connective tissue and some layers of epidermic cells, but no glandular formation or hair.

This spherical formation of dermoid-cyst contents is rare. But four similar cases have thus far been described—two in the practice of Rokitansky (the specimens are to be seen in the pathologico-anatomical Institute of Vienna), one case reported by Routh, and one by E. Fränkel, of Breslau.

In all of these cases there was a fluid found with the spheres in the cyst. The author is of the opinion that the preponderance of epithelial cells over the fatty masses and the rolling, wavy movements, are the cause of the formation of the spheres.

GERMANY.

New Methods of Vaginal Fixation of the Uterus.

Dr. F. KIEFER (*Cent. für Gyn.*, April 11, 1896) states that since the many reports of difficult labor following fixation of the uterus many new methods have been proposed. The author desires to report an operation performed by him a year ago. During the discussion of Leopold's adverse criticism of the operation of vaginofixation, Bode, of Dresden, expressed the opinion that Alexander's operation might possibly be performed by way of the vagina. The author had already performed this operation on November 8, 1895. The case is recorded in Wenderler's paper (*Berl. klin. Wochenschr.*, No. 1, 1896). It was a case of chronic metritis, with fixed retroflexion of the uterus. After the firm adhesions were detached and the uterus brought forward, the round ligaments were brought down and stretched as far as possible without injury. They were

then folded or looped, and sutured upon the denuded fundus. This shortened the ligaments three or four centimetres. The vaginal incision was then closed. Two weeks later the patient was able to leave the hospital. The uterus was well up and movable. This could be called a successful operation, but it is evident that in many cases the round ligaments could not be brought down and folded upon the fundus. Therefore the operation has but a limited field of usefulness, and the author would rather recommend a procedure that he has carried out several times upon the cadaver. *This is fixation of the shortened round ligaments upon the anterior abdominal wall per vaginam.* The object of this operation is to obtain a firm union between the denuded round ligaments and the abdominal wall, without the formation of any pockets that might interfere with the intestines.

This is practically the modified ventrofixation of Olshausen without the laparotomy. When we consider that of two hundred vaginal incisions in Martin's clinic the mortality was nothing, it possesses a decided advantage over the abdominal method.

In the operation under discussion the bladder is separated from the uterus, and two fingers are introduced into the peritoneal cavity. Under the protection of the finger, the abdominal wall is punctured with an instrument similar to Billroth's old artery needle, carrying catgut or silkworm gut. The end is held on the outside by an assistant. The other end of the suture is then passed through the round ligament twice and then through the abdominal wall, and the two ends are tied after the ligaments have been freshened. The other ligament is treated in a similar manner. By this means a fibrous union is obtained between the ligaments and the abdominal wall, the retroversion is overcome, and the fundus is free. By this method puncture of the intestines is nearly impossible, and the result should be permanent and the position of the uterus much more natural than by the vagino-fixation, and pregnancy and delivery should in no way be interfered with.

Röntgen Rays in Gynæcology.

Dr. A. SCHÜCKING (*Centralbl. f. Gynäkol.*, No. 20, May 16, 1896) comments upon the value of the discovery applied to gynæcological and obstetrical diagnosis as follows: The method would be simplicity itself and the field for scientific investigation would be most

extensive if a recent communication in an English medical journal could be believed. In this paper the outline pictures taken by means of X-rays clearly show small foreign bodies in the vertebral column of a man. Such exaggeration is bound to be discovered sooner or later. Thus far, with the aid of the largest Ruhenkorrff's spark inductor, it has been impossible to penetrate muscular or other layers of tissue of more than fifteen centimetres thickness in such a way that useful pictures were obtained. Some operators succeeded in obtaining good outline pictures of the extremities through the above-mentioned thickness, but only after exposure for nearly an hour. Thus far it has not been possible to photograph the lesser curvature of the stomach. One difficulty lies in the necessity for a long exposure. To obtain an outline picture of the hand an exposure of half an hour is necessary, and of the abdominal organs a much longer time would be required, and of course the subject must be immovable during this time. During long exposure the vacuum tubes become useless, either because air enters the tubes or by the consumption of the minimum of air that remained after the exhaustion. It is well known that not all of Hittorf's vacuum tubes are fit for these experiments. Often if a clear blue cathode light has been obtained, and the glass plane opposite to the cathode disc fluoresces with the most beautiful greenish-white light, a satisfactory result is not obtained.

If at present we are unable to obtain pictures of the pelvis and of the pelvic organs, still it will be worth much to obtain pictures of the development of the foetus, and also of organs and tumors separated from the surrounding tissue.

Since writing the above the proceedings of the medical section of the Royal Prussian Ministry of War have appeared, and in them is to be found an excellent picture taken by transmitted light of a foetus *in utero* in the fifth month. This picture gives a perfect view of the process of ossification going on in the skeleton. The transparency of the hyaline cartilage is here very clearly shown. The position of the foetus is, of course, well defined, and that is of great importance. The improvement in the instrument has been very great, and we are convinced that gynæcology will yet receive its share of this great discovery.

Notes on the Administration of Ovarian Tissue in the Treatment of Nervous Symptoms accompanying the Menopause.

Dr. F. MAINZER (*Deutsch. med. Woch.*, June 18, 1896) reports the following interesting results from the administration of ovarian tissue. In a former number of this JOURNAL the author reported a case that was greatly benefited by this treatment. In this case the fresh ovarian tissue was administered. Dr. Mond, of the University of Kiel, has published favorable results obtained by the use of the dry preparation of Merck.

In the later experiments the author has used a preparation made by his direction by Dr. Freund. It is called "Oöphorin Tablets." The beneficial results to the author are most convincing. The tablets consist of the desiccated substance of the entire ovary prepared immediately after removal. Each tablet contains 0.5 gramme of dry ovarian tissue. The amount of fresh ovarian tissue necessary to produce 0.5 gramme of the dry varies from 2.9 to 3.3 grammes. The ovaries have been obtained from cows and pigs, and no difference has been noted in the results.

The cases in which this remedy was employed were (1) those in whom the menopause was induced by operation; (2) those presenting nervous phenomena accompanying the natural menopause; (3) amenorrhœa in consequence of protracted nursing, etc.; (4) to hysterical women to be used as control experiments. Twenty-four cases are recorded.

CASE I.—Patient twenty-two years of age; one year ago had had radical operation by vaginal method for double pyosalpinx; shortly after the operation she began to suffer from flashes of heat, emotional excitement, anxiety, vertigo, and at these times would be bathed in cold perspiration. Sleep was disturbed. At the time that the treatment was begun she had not less than twelve attacks a day.

One to three grammes were given daily. After the second day the cold perspiration disappeared, and the excitement diminished. When the treatment was discontinued the symptoms returned. After six days of regular treatment, the number of nervous attacks decreased to two per day. These were so slight that the patient suffered little inconvenience from them. The improvement was marked. The observations were interrupted by the departure of the patient.

CASE II.—Patient aged thirty-two years. Six months ago she had had double ovariectomy performed, and since that time has had daily flashes of heat and feelings of intense anxiety, accompanied by profuse perspiration. Attacks varied from six to twelve in twenty-four hours. One to three grammes of prepared ovarian tissue were given daily. After the second day the patient noticed a marked improvement in the symptoms. The number of the attacks and their intensity diminished markedly. After fourteen days of treatment the patient considered herself cured. She has an occasional attack, one or two during the day, but they are so slight that they cause her little inconvenience. Three weeks after the suspension of treatment the patient returned. For eight days she continued well, and then the attacks began to return and resumed their former frequency and intensity. After a few days of treatment the symptoms were again controlled.

CASE III.—Patient unmarried, aged forty-four years. Six months ago had uterus and appendages removed. Since the operation she has had from six to eight nervous attacks a day. These have consisted of scintillation of sight, great anxiety, flashes of heat, vertigo, and profuse perspiration. Frequent headaches, melancholia, and weakened memory.

Treatment.—Two to five grammes in increasing doses for ten days, afterward decreased to five grammes daily. From the second day the symptoms disappeared rapidly. The attacks became less severe and less frequent. Her sleep became more natural, and her memory improved. On the sixth day of treatment patient noticed a bloody discharge from the vagina. This was the first that had occurred since the time of the operation, sixteen months ago. The patient states that this flow is accompanied by the symptoms that characterized menstruation. The flow lasted two days, and since then the patient has considered herself well. Sleep, appetite, and disposition are normal. Her memory has been greatly improved.

Nervous symptoms accompanying the natural menopause:

CASE I.—Patient aged forty-eight years. During the past year menstruation has been irregular, and has ceased for past nine weeks. During the last few months patient has suffered from flashes of heat and cold, accompanied by profuse perspiration. Mustard foot baths have relieved this condition somewhat, but notwithstanding she has about twenty attacks during the day. She is much depressed mentally. She has taken from 1 to 2.5 grammes of ovarian

tissue daily. During the first four days little change was noted, but from this time the improvement became marked. From the sixth day no attack occurred. For ten days the patient took 0.5 grammes. After suspension of treatment for two weeks she felt a slight return of symptoms, but no attack. After a suspension of sixteen weeks menstruation has returned, and since then she has remained in perfect health.

CASE II.—Patient aged fifty-one years; has not menstruated for fifteen months. During the past year she has suffered from nervous symptoms, excessive anxiety, flashes of heat and cold, vertigo and profuse perspiration, headaches, and loss of memory. She has taken from 1.5 to 7.5 grammes daily. The symptoms disappeared rapidly. Sleep improved, but she continues to have headaches, especially at night. For this her family physician has prescribed iodide of potassium, and ovarian treatment was suspended.

For *amenorrhœa*:

CASE I.—Patient aged thirty-one years; married. Has never menstruated. From her seventeenth or eighteenth year she has suffered every month from intense headaches and pain in the sacral region, and for the last two years the periods have been accompanied with "stiffness in all of the joints." The last time this condition lasted for two weeks, and the patient was compelled to remain in bed during this time. Patient has an infantile hard uterus. Nothing of the appendages to be felt.

Dose from 1.5 to 2.5 grammes daily.

Condition unchanged during the first three days; after that the exhaustion that she suffered from disappeared entirely, and she resumed her work. Two weeks later she returned and reported that she had menstruated for the first time in her life. The flow lasted for two days, and was scanty and pale, and during this time she felt entirely well. After menstruation had ceased she had some return of the weak feeling, and began treatment again.

CASE II.—Patient aged twenty-four years; married; has never menstruated; complains of general exhaustion, headache, and flashes of heat and cold two or three times a day, accompanied by profuse perspiration. Sleeps well, but appetite is poor, and complains of a feeling of heaviness in the feet.

Dose, 1.5 to 3.5 grammes daily.

After four days the attacks were much less frequent, and not nearly so severe, and after eight days' treatment they disappeared

entirely. The sense of exhaustion was greatly relieved, but the heaviness of the feet remained unchanged.

Control experiments with hysterical women:

CASE I.—Patient aged twenty-eight years. Six months ago one of the ovaries was removed; the other, containing small cysts, was resected. During the last three months the patient was reported to have suffered from attacks of syncope, difficulty of respiration, with a sense of oppression. These attacks occurred four to five times daily. Sleep natural, appetite good, and menstruation regular.

Dose, one to four grammes daily.

The attacks diminished on the second day, but other conditions remained unchanged. After twelve days treatment was abandoned, no result having been noticed. Two weeks later the patient was again seen; her condition was the same. She now remembers to have had the same symptoms before the operation.

CASE II.—Patient aged forty-two years; married. Had both appendages removed five years ago for double hydrosalpinx and cystic degeneration of the ovaries. After the operation she has had flashes of heat, without any perspiration or anxiety, but with great exhaustion and inability to sleep. For several weeks she has had incontinence of urine, and then for some time she would urinate normally. *She has a feeling of globus hystericus.*

She was given from one to five grammes daily. After treatment of ten days the condition remained the same. In estimating the value of this remedy the author has endeavored to eliminate the effect of *suggestion* on the patients.

The influence of the remedy upon individual symptoms seems remarkable. Generally two or three days pass without any appreciable change, then the feeling of anxiety and the profuse perspiration disappear, and later a diminution in the number and severity of the attacks. In a number of the cases recorded the symptoms have not entirely disappeared. If this were hypnotism the symptoms would all have disappeared. In other patients there were symptoms other than those which accompany climacteric changes, such as headaches, pain in the sacral region and in the lower limbs, scintillation of sight, etc. These were not influenced by the remedy. In short, only those symptoms that might be attributed to the absence of the ovarian function were influenced by the remedy. The effect of the remedy is demonstrated by the fact that the symptoms reappear at variable intervals after the discontinuance of the remedy.

This observation fully corresponds to the experience gained in the thyroid treatment of myxœdema. It is of the greatest importance that the ovaries used should be absolutely fresh, for the products of decomposition might produce dangerous symptoms.

The most remarkable results were in the two cases that had the sanguineous flow after the administration of the ovarian tissue. One was a patient from whom a fibroid uterus had been removed eighteen months previous to the experiment, and she had never had a sign of a flow until this time. Examination with the speculum showed the vault of the vagina, which had always had a whitish appearance, to contain a reddish body about the size of a cherry, apparently granulation tissue.

The second case was more remarkable, as menstruation occurred after the administration of ovarian tissue in a woman of thirty-one years, who had never menstruated before.

The conclusions that the author has arrived at are as follows: That the disturbances of the vasomotor system in a number of cases when the menopause has been induced by operation can be completely cured by the administration of ovarian tissue, and no evil results need be feared if care is taken in the preparation of the substance.

The symptoms of most of the women at the menopause are due to vasomotor disturbances and hysterical symptoms. These patients are cured or benefited by the same treatment. The vasomotor disturbances are removed, and the hysterical symptoms are relieved by the improvement in the general condition of the patient. In primary or secondary amenorrhœa the remedy has a remarkable symptomatic effect.

In general nervous and hysterical symptoms the remedy has no influence.

The benefit of the remedy lasts only a limited time after its discontinuance.

GREAT BRITAIN.

A Case of Supravaginal Amputation of the Cervix for Carcinoma during the Fifth Month of Pregnancy.

Dr. C. A. MORTON (*Lancet*, August 8, 1896) reported the following case at a meeting of the Bristol Medico-Chirurgical Society: The patient was thirty-seven years of age; her only symptom was

a profuse white discharge and a slight loss of blood a week before her admission to the hospital. She had suckled her last baby up to three months before admission; and menstruation, which began during lactation, ceased two months earlier. A large cauliflower-like growth was found upon the anterior wall of the cervix, which did not seem to extend up the cervix to the body, and had not involved the vaginal wall. The consulting surgeon agreed with the author that delivery could not take place through the cancerous cervix, and that either the growth must be removed, or the pregnant uterus removed through the abdomen, or Cæsarean section be performed later. Supravaginal amputation was decided upon. This was performed with the galvanic *écraseur*, so as to avoid the excessive hæmorrhage that follows the use of the scissors upon the pregnant uterus. The bladder and the peritonæum of Douglas' pouch were both deflected, the bases of the broad ligaments on each side with the uterine arteries were secured with ligatures, and the cervix divided about the level of the internal os. The bleeding was very slight; only one or two posterior vaginal vessels had to be clamped.

She had little pain and no temperature after the operation. Four days later water began to escape from the vagina, and labor pains came on. The day following the foetus was discharged, and the placenta was removed with the aid of an anæsthetic. It was decomposed. Two weeks later the patient was discharged with the stump of the cervix healed. Six months after the operation she is in good health, and there is no sign of recurrence of the disease. Was supravaginal amputation of the cervix the best treatment for this patient? Mr. Greig Smith considered that it would have been better surgery to have removed the pregnant uterus, as had been done by Sir Spencer Wells. The author wholly disagrees with this opinion. He considers supravaginal amputation an eminently satisfactory operation, with very slight mortality, and a period of non-recurrence extending over two years in the majority of cases. The cases presenting cauliflowerlike growths do not tend to spread up the cervical canal. When one can get well beyond the growth, he considers the amputation the preferable operation. The existence of pregnancy increases the liability to hæmorrhage, makes it possible for septic absorption to occur from the cut surface of the cervix after the abortion, which would probably follow the operation. But by removal with the galvanic *écraseur* and secure ligation of the

portion of the broad ligaments containing the uterine arteries, the danger of hæmorrhage was overcome, and the cauterized surface was unfavorable to septic absorption. It has been recommended by some obstetricians that abortion should first be produced in these cases, and then the growth be removed, thus avoiding the great risk of hæmorrhage during pregnancy. In this case there seemed so much danger of extensive laceration and sepsis that the idea was abandoned. That there is real danger of hæmorrhage from operations performed during pregnancy is shown by a case from the records of Dr. Lewers. He intended to remove a growth by supravaginal amputation, but found the parts so vascular that he cut off the protruding mass of growth with an écraseur, and waited until eighteen days for involution to take place. He then performed supravaginal amputation, but the hæmorrhage was so great that he had to send the patient back to bed with nine Spencer Wells' forceps hanging on the stump. Dr. Byrne, of Brooklyn, has performed supravaginal amputation in four hundred cases with the galvano-cautery without a death.

Should the uterus be cleared out at the time the cervix is removed, after rapid dilatation of the os, or should abortion be allowed to follow? The author prefers the latter course.

CANADA.

One Hundred and Ten Operations for Retrodisplacement of the Uterus, with Subsequent Results.

Dr. LAPHORN SMITH, of Montreal (*Author's Abstract*), read a report of one hundred and ten operations for retrodisplacement of the uterus before the Canada Medical Association on August 26, 1896, at Montreal, of which forty-two were Alexander's operations of shortening the round ligaments, and sixty-eight ventrofixations, or suspensio-uteri operations. He said that he now felt justified in coming to certain conclusions concerning these two operations since he had been performing them for over six years, the first Alexander's having been performed on January 23, 1892, and the first ventrofixation on March 18, 1890.

Most of the patients had been seen and examined not only by himself but also by many other physicians and students attending his clinics, while the few who had not been seen had been heard from through the physicians who had sent them to him. The re-

sults of both operations had, on the whole, been very satisfactory, with the exception of two cases, in which the ligaments broke, being very fatty, and also partly owing to the method of operating, which he has since improved; in one of these cases he immediately performed ventrofixation with good results; the other was a complete failure, having declined further operation. Also in one of the Alexander cases the uterus remained in good position for six months, when it began to fall a little. The failures all occurred among his earlier cases, none having occurred among those operated upon during the last two years. So far no case of hernia had resulted from the operation. The ventrofixations gave even better results than the Alexander's. They were performed for the most part upon women who not only had retroversion with fixation, but the ovaries and tubes were at the same time prolapsed and bound down by more or less dense adhesions. In many of these, also, there was laceration of the cervix and perinæum with cystocele and rectocele. In those cases in which he had performed seven operations at one sitting, occupying from an hour and ten minutes to an hour and a half, he had obtained the most gratifying results. These operations were: (1) Rapid dilatation with Goodell's dilator; (2) curetting with Martin's curette; (3) repair of lacerated cervix by Emmet's method, or amputation by Schröder's method; (4) tightening up the relaxed anterior vaginal wall by Stoltz' method; (5) repair of the perinæum by Hegar's method; (6) removal of diseased tubes and ovaries, and breaking up all adhesions binding the uterus down; and (7) scarifying the anterior surface of the uterus and posterior surface of the abdominal wall, and stitching the uterus to the latter by two fine buried silk sutures, most carefully sterilized. The disasters following ventrofixation were two hernias and one relapse, all of which were subsequently remedied by a second operation. At the present time Alexander's operation has no death rate, while ventrofixation, while it has not any death rate in simple non-adherent cases of retroversion, yet it must have a small death rate, at least when it follows the removal of very bad pus tubes.

He had performed both Alexander's operation and ventrofixation for prolapse as well as for retroversion, and, as the results were excellent provided the pelvic floor was at the same time repaired, he much preferred these operations to vaginal hysterectomy for prolapse, an operation which he had performed a few times and found easy, but which he hardly felt justified in doing.

Although several of the Alexander's had subsequently become pregnant, in no case did any untoward accident happen. But he had heard that some one on whom he had performed ventrofixation had subsequently become pregnant and aborted, but he had so far been unable to verify it. He was not aware that any of them had even become pregnant. This was probably owing to the fact that he had in most of them removed the tubes and ovaries, while in those in which he had left one or both ovaries and tubes they were diseased and unable to functionate. He was frequently asked which of the two operations he preferred. This was difficult to answer. Alexander's was safe, but he preferred ventrofixation, because it had given him the best results. He would probably continue to do Alexander's operation in young married or marriageable women in whom the ovaries and tubes were perfectly free from organic disease, while he would reserve ventrofixation for women who were sterile or who had marked adhesions, and who had suffered so much and so long in spite of treatment that the appendages had to be removed.

OBSTETRICS.

UNITED STATES.

A Case of Ectopic Gestation.

WALTER B. CHASE (*Brooklyn Med. Jour.*, May, 1896) gives the history and autopsy of a woman, aged thirty-five years, the mother of nine children, who became pregnant about five months before her death. When two months pregnant, she suffered with severe abdominal pain, from which she recovered, except slight pain and tenderness in her right iliac fossa. An enlargement the size of an egg was distinctly recognized. She was again seen three months later, when she stated that she had suffered less, but occasional gushes of dark-colored blood had come from her vagina. Her abdomen was enlarged and she felt motion. The cervix was soft and pushed up under the pubes by a mass in the abdomen. The tumor reached to the umbilicus, ovoid in shape, and the size of a three months' pregnancy, but lacked the resistance of uterine structure. The diagnosis of ectopic gestation probably within the right

broad ligament was made. The woman was informed of her condition and danger, and urged to enter the Bushwick Hospital for an operation, but completely ignored the advice. One month later she was taken suddenly very ill, and sent for medical aid. Dr. Beasley arrived in thirty minutes, only to see her die within fifteen minutes more. An autopsy was obtained with restrictions. The pelvis was found to be filled with fluid blood. A tear half an inch in length was found on the posterior wall of the right broad ligament, which marked the source of the hæmorrhage and the cavity of the front sac, which was subperitoneal and intraligamentous. The foetus was about five months old, being rather transversely situated, its breech to the right ilium. The placenta was beneath the foetus. This was doubtless primarily a tubal pregnancy escaped to within the broad ligament. Had the woman entered the hospital even for observation it is possible prompt action might have saved her at the beginning of her fatal rupture. An operation done at the time suggested to her would doubtless have done so.

A Case of Extraperitoneal Ectopic Gestation.

H. G. WETHERILL (*Colorado Med. Jour.*, June, 1896) reports the following case in a German woman, aged thirty-six years: The patient was of good family and personal history; had had five children (twins the first time), but had not been pregnant for eleven years. Menstruation ceased in January, 1894; for two months previous to that time she had menstruated biweekly. She first felt life in May, and, except that the foetal movements were stronger than ever before, the course of the pregnancy was apparently normal. In September false labor took place, accompanied with much pain, and followed by several weeks' illness. She then grew smaller, and the abdominal enlargement, which had before been symmetrical, came to be distinctly on the left side. In December she came under the author's observation, suffering from headache, backache, chilliness, loss of flesh and strength, anorexia, and great prostration. Physical examination showed a large belly, with a prominent mass to the left of and below the umbilicus; this mass fluctuated, and was covered with bodies that could be rolled under the fingers (bowels or enlarged veins); no foetal parts could be made out. There was a smaller solid mass below and to the right, which, upon vaginal examination, proved to be the uterus, somewhat enlarged

and displaced backward, while the rest of the pelvic basin was occupied by a large semi-fluctuating mass. The os admitted the index finger, and the sound could be passed four inches. Ectopic pregnancy, either interstitial or intraligamentous, was diagnosticated.

A median incision from umbilicus to symphysis pubis was made. The removal of the gestation sac was found to be impossible, owing to adhesions between it and the omentum and intestines; the sac was therefore packed about with gauze and freely incised. A large quantity of dark-brown fluid escaped, and the child was withdrawn; it was a male, fully developed, with double talipes varus, and much macerated, though not putrid. The placenta, with membranes and cord, was easily removed without hæmorrhage; the placental site was in the upper posterior part of the sac, a matter which would have been of great importance had the operation been done at the latter end of pregnancy. The abdominal cavity was then flushed with salt solution, the interior of the sac wiped dry and packed, and its edges sutured to the parietal peritonæum and the divided muscles. Drainage continued for about two weeks; convalescence was uninterrupted, and the scar was firm on the patient's discharge in March, 1894.

The author made the median incision with the idea that if the gestation were interstitial he might be able to remove the sac by doing a hysterectomy. He concludes, however, that the sac can in either case be left to Nature, and that it would have been better to make the incision on the side; the peritonæum, being pushed up by the tumor, would not have had to be opened.

Puerperal Infection: its Cause and Treatment.

J. FRAUNFELTER (*Columbus Med. Jour.*, September 1, 1896) thus summarizes modern views regarding puerperal septicæmia: (1) That it is not a specific disease peculiar to women after childbirth, but is allied to other septicæmic conditions; (2) that it is due to the activity of micro-organisms; (3) that the cause may develop within the body of the woman so affected—auto-infection, which, though disputed by some, seems to be well established as a cause. Sapræmia may also occur in the puerperium; it is due to the absorption of toxines rather than of germs, these germs finding a focus on any putrefactive surface or in any local death of tissue; the condition is therefore established earlier than septicæmia—perhaps

as early as ten hours after delivery—and is most often observed after tedious labors, with injury of the soft parts, or follows retention of clots or of placental fragments. The channels of absorption of the poison are the mucous membrane itself of the vagina or uterus, open wounds in the vaginal mucous membrane or at the placental site, or the uterine sinuses. A preliminary chill is usually wanting; there is a rather rapid rise of temperature, rapid anæmia, headache, nausea, and vomiting, and, later, diarrhœa and inflammation of the bowels, the blood being first affected, then the nervous system, and lastly the intestinal canal.

The most important part of the subject is the manner in which the poison reaches the patient. There may be uncleanness in a given case or transference of the infection from one case to another; the physician may infect case after case from some germ-breeding affection of his own. The poison seems sometimes in a ward to be carried in the air, the disease being really endemic. The author believes that auto-infection may in most cases be prevented by vaginal douching both before and after labor. This, together with the usual rigid antiseptic precautions in regard to the physician and attendants, instruments and dressings, and also the assurance of complete removal of the secundines, makes up the prophylactic treatment. The curative treatment is that usually recommended, but we may perhaps hope for better results in the future from serum therapy.

A New Method of treating Incomplete Abortion.

Dr. ANNA M. STUART (*N. Y. Med. Jour.*, September 26, 1896) calls attention to the fact that "self-induced abortion is frightfully common among the lower classes of the community, the same woman repeating the crime year after year. Since, according to the traditions of the laity, any interference is safe at the period of two months, they task their ingenuity to perform barbarous operations upon themselves at this time. The male rubber catheter, a sharp trocar, a corset steel, a crochet needle, are all instruments thought safe enough to introduce within the uterine cavity. If 'nothing comes,' the operation is repeated day after day. And what is most surprising to the physician who has been brought up with a just dread of all dirty instruments on all occasions is that spontaneous recovery is the rule, and that the majority of cases

never come under surgical care, unless for chronic pelvic diseases, which invariably follow such abuses."

Sometimes, however, all domestic methods fail; the inert uterus refuses to expel the secundines, bleeding continues, and the patient becomes frightened by the persistence of chills, fever and vomiting. Even in these cases, however, the patient is with great difficulty induced to confess the cause of her symptoms to the physician whom she consults, whose reputation is often endangered by the concealment with which self-abortionists endeavor to cover over the effects of their crime. The author urges that these patients be induced, if possible, to confess to some near relative before any attempt is made by the physician to treat the case. She then proceeds to describe her method, which is "ordinarily safe to try upon simple cases for the first twelve hours. If successful, it is much easier both for physician and patient than the full dilatation of the cervical canal and the manual extraction of secundines with finger, curette, or placenta forceps. Moreover, it can be performed without disturbance in the household, without family assistants, and without anæsthesia."

The author details her method and its rationale as follows:

"The woman is placed crosswise of the bed (made as hard as possible) in dorsal position on a Kelly cushion. The external parts and vagina are thoroughly washed with green soap and warm water, and the hair trimmed off. This is followed by an antiseptic vaginal douche. The bivalve speculum, freshly boiled, is inserted and opened, and the screws are set. The internal os is usually patulous enough to admit Bozeman's intra-uterine douche. Through this a hot creolin solution is allowed to flow, always watching to see that the return current remains free. Then all loose clots and *débris* are removed by the dull curette. The cavity is again washed, and this process is repeated until nothing remains but the firm decidual tissue, which clings to the uterine wall and could not be removed without much dilatation, causing much pain to the patient. The hot creolin solution is an excellent hæmostatic, and is allowed to flow until it returns white. Finally, the uterus is packed from the fundus to the external os with iodoform gauze prepared by myself. It contains more iodoform and more sterilized glycerin than the commercial article. The first gauze is withdrawn, thereby wiping out the cavity, and a second piece is firmly placed so as to stop all hæmorrhage.

"The patient will usually endure this treatment without a groan. She is now put back to bed and given quinine, strychnine, and sometimes repeated doses of ergot. If pains come, she is told to endure them, and no opiate is allowed.

"Now, what happens is this: The inert uterus is stimulated to contract. The blood, unable to escape, distends the cavity and flows in between the decidua and the uterine wall, dislodging the former. Finally, the internal os dilates, the gauze is expelled, and with it all the uterine contents.

"Another creolin intra-uterine douche, and if endometritis exists the gentle use of the sharp curette and a gauze drain, complete the work.

"Contraction and involution of the uterus go on rapidly."

The two following cases which we quote are given by the author to show the effect of her treatment when properly carried out:

"CASE I. *Spontaneous Abortion*.—Mrs. S., aged twenty-six years; one child, aged fifteen months; menstruated three months ago, while nursing; had been suffering for a month with irregular discharge, pallor, and cachexia; was suddenly taken with chills and nausea. Temperature, 100°.

"The uterine cavity was washed and packed as detailed above. A small hypodermic of morphine was first given to quiet her. The work was done in the evening. She slept well all night. In the morning a few pains came on, the gauze was found expelled, in company with a firm, round decidua in the vagina. Five days later a foetid discharge was noticed. Although the woman was feeling well, with temperature and pulse normal, the speculum was again inserted.

"The rather large cervix was found filled with putrefying blood clots. These were removed, the uterine cavity thoroughly but gently curetted, and a gauze drain left in.

"If the gauze had been put in after the first was expelled, I think the accumulation of blood clots would have been avoided.

"Recovery was rapid, the gauze was expelled in thirty-six hours, and all discharge ceased.

"CASE II.—Mrs. H., aged twenty-three years, no children; had had an abortion performed a year ago by a doctor on account of retroflexion with adhesions. Had been ill five days; admitted committing abortion by means of a crochet needle, repeatedly introduced; severe rigors; temperature, 104°. She was treated in the

same manner. Her uterus was packed; contraction pains came on, accompanied by rigor, feeble pulse, and numb extremities. Stimulants were given, a reaction followed, and temperature rose to 106°; pulse, 120. Temperature fell during the afternoon slowly to 101°. Contraction pains continued, with more or less respite, for eight hours. Then gauze was expelled and decidua found lodged in the cervix, so as to be easily removed with the dressing forceps. Bleeding and pain ceased, and temperature was normal on third day. Rapid recovery."

GREAT BRITAIN.

Placental Tissue, Fresh and Old.

W. E. FOTHERGILL (*British Med. Jour.*, May 9, 1896) denies that in "placental polypus" and "sarcomatous" or "fleshy" mole, placental tissue can remain fresh and comparatively unaltered for many months after the death of the foetus. He presents illustrations from five sections of placental tissue which had been retained *in utero* for varying periods after the death or expulsion of the foetus:

"No. 1 from a section of placenta in an early stage of development—that is, from a three or four weeks' abortion removed whole, and hardened at once. The villi are covered with foetal epithelium, one layer thick in some parts, two layers thick in others. The core of the villus is mucoid connective, and the blood-vessels of the villus are hardly developed.

"No. 2 from a fresh placenta about four months old. It shows the foetal epithelium covering the villus reduced to one layer of cells. The core of the villus is better formed connective, still mucoid in type. The blood-vessels are well developed, and contain unaltered foetal blood. Between the villi nothing but fresh blood is seen. These two sections are given to show the appearance of fresh unaltered villi at different stages of development.

"No. 3 from a two and a half or three months' abortion. A portion of the placenta was retained *in utero* for a few days. The intervillous space is filled with altered maternal blood, showing commencing organization. Strands of fibrin are seen, and between them numerous leucocytes and red blood-corpuscles, which are undergoing disorganization. The epithelium of the villi is degenerating. The cells have lost their clear outline, the protoplasm is cloudy, and the nuclei are becoming irregular in outline, and stain in a defective manner. The connective is not much altered, but the blood-

vessels are compressed, and contain foetal blood in process of disintegration.

"No. 4 from an abortion of similar age, whose placenta was retained *in utero* for a longer period—namely, for six or seven weeks. The maternal blood between the villi is considerably organized, and the villi are markedly degenerated. The foetal epithelium has separated from the subjacent connective in places, and the cells have lost their outline and become fused into an almost uniform layer, showing traces of nuclei in places. The connective core of the villus is compressed, and the blood-vessels are obliterated, leaving no trace but a little pigment.

"No. 5 from a patient who had menstruated regularly, missed two periods, and when the third period was due lost some blood and clots. When examined some weeks later the os was firmly closed, and she had seen no further discharge of blood. The uterus was so large that it was thought that the original pregnancy might be going on, or that a new one might have commenced just after a supposed abortion at the third month. She remained quite amenorrhœic until five months after the supposed abortion, and then began to have pains and bleeding. A placental mass the size of a goose's egg was removed, solid, firm, and fleshy in texture. Thus, five months before, the embryo had perished, and during these five months no bleeding had occurred externally. Therefore in this case, if in any, one would expect to find the placental tissue as vital and unaltered as it could be five months after its function and foetal circulation ceased. An accompanying drawing shows a villus from this placenta which can hardly be described, so complete is its disintegration. Compressed by organized blood clot and separated from its fellows, it is, indeed, but a wreck of a villus."

He believes that after the foetal circulation has ceased no constructive process continues in the foetal elements of the placenta, and finds no trace of division in either epiblastic or mesoblastic foetal cells of a placenta whose embryo has been dead any length of time. The foetal tissues may increase in size, but only through the swelling of degenerative processes. The maternal blood occupying the intervillous spaces clots and becomes organized, rendering firm and tough the originally spongy placenta. The villi in a placental relic play a part comparable to that of a sponge graft, affording a structure round which new connective tissue is formed. Young villi degenerate more quickly than mature villi, but then

epithelium is more distinct and perfect than that of old villi. In determining the length of time a placenta has been retained, one should judge by the degree of organization that has occurred in the blood clot between the villi rather than by the condition of the villi themselves. The time occupied by the transformation of blood clot into fibrous tissue is fairly well known, so that there should be no difficulty in deciding whether a placenta has been retained for days, weeks, or months; though after fibrous tissue is once formed, it doubtless undergoes very little further alteration.

The placenta has been supposed to grow after the death of the foetus in ectopic gestation. But recent investigation has shown that all progressive changes that occur are in the blood clot, and that none but degenerative processes occur in the villi. At present, concerning deciduoma malignum, some hold that foetal epiblast lives and grows in the maternal tissues, while others claim that the origin of the new growths in question is decidual cells, which are simply connective-tissue cells of the uterine mucosa. It is far from proved that foetal cells play any part in the matter, so that deciduoma malignum at present affords no argument against the above conclusions.

FRANCE.

Twin Pregnancy; Hydramnios; Premature Delivery; the First Foetus presenting Unilateral Fusion of the Two Kidneys; the Second forming an Omphalosite Peracephalus.

CHAMBRELENT and M. CHEMIN (*Jour. de. m d. de Bordeaux*, No. 9, March 1, 1896) report the case of a woman, aged forty years, of habitual good health, who had been married twice. By her first husband she bore four well-formed children at term, one being asphyxiated during delivery. By her second husband she had been pregnant four times previous to the present instance. Of these she aborted twice at the fourth and sixth month, and gave birth to two well-formed children, who lived but a few days each. During this last pregnancy she developed hydramnios by the third month, which was recognized by Dr. Chaleix. During her sixth month she was taken with pains, and sent for a midwife, who, finding the cervix dilated to the size of a silver dollar and the woman in great distress, ruptured the membranes, giving vent to six litres of liquor amnii. The first foetus was expelled dead in a few minutes. Owing to a severe uterine h morrhage, the midwife extracted the

second foetus, also dead, with some difficulty, having sent for medical aid meanwhile. She also extracted the placenta, which was single with one cord, bifurcated at about three centimetres from the umbilicus of each foetus. On the arrival of Dr. Chamberlent, the hæmorrhage had ceased; the patient was sent to the Hospital of St. André, where she was curetted, and made a rapid recovery.

The *first foetus* was apparently well formed. All its organs were normal except the kidneys. The left kidney was absent, but the suprarenal capsule was in place, though somewhat rounder than normal. On the right side an immense kidney filled the abdominal cavity from the iliac fossa to the diaphragm, surmounted by a normal suprarenal capsule. This kidney was not of normal shape; the concavity on the internal border was marked by two lobes; the anterior face was also marked by a transverse groove, which divided it into two portions. There were two hila, two ureters, and two renal arteries distinct from each other. No anastomosis was found between the hila. The ureters entered the bladder independent of each other. It appeared to be two kidneys fused *vertically* upon each other. This vertical arrangement is rarer than the horseshoe kidney in the median line or the entire absence of one kidney. The presence of both suprarenal capsules in their proper places has been observed in nearly all similar cases. There was no deviation of the spinal column, as claimed by some.

The *second foetus* was a monstrosity—in fact, a parasite living upon the umbilical cord of the first foetus. M. Chemin describes it very minutely with diagrams, the chief points of interest being that it was an œdematous mass nearly ovoid, without a cephalic extremity, having one well-formed limb and foot on the right side, and but a foot—apparently no leg—on the left side; both feet had five distinct well-formed toes. The mass was twenty-four centimetres in its greatest circumference and seven centimetres in length, including the leg. It was covered by skin devoid of wrinkles or hair. There was a well-formed scrotum and penis, with a well-situated meatus. The anus was absent. The right leg and foot were completely developed, with tendons, muscles, nerves, and blood-vessels; in the thigh the muscles formed a muff, separated from the bone by a dense cellulo-fatty boss; the sciatic and crural nerves and the femoral artery were distinct. On dissecting the body mass, the left leg was found as well formed as the right. Beneath

the skin the body was lardaceous and cedematous, with a few nerves and blood-vessels to be seen. The skeleton consisted of a rudimentary pelvis of two iliac bones, but no sacrum; a few tubercles behind represented the spinous processes. The umbilical cord consisted of the bladder, the urachus, and two umbilical arteries. In the pelvis was a mass which proved to be a kidney. Injection of the umbilical vessels permeated only to the left umbilical artery, which divided into two branches, one going to the kidney and the other issuing from the pelvis by an opening like the femoral ring to form the femoral artery of the right leg. There was no spinal canal and no trace of a rudimentary nervous system. The whole nervous system was reduced to a plexus situated on the profound surface of the viscera, and from which the nerves of the completely developed limbs issued. This agrees with the views of His, Marshall, and Balfour, who claim that a certain number of nerves may develop independently of the cerebro-spinal system; these are the sensitive and sympathetic nerves. It is probable that the nerves in this monstrosity were developed from the sympathetic system. It tends to prove that the muscles far from degenerate in the absence of motor nerves, and can be developed without them. It also serves to confirm Weiss' opinion that the sensitive terminations appear in the muscles before the motor terminations. This, then, is a monstrosity ranking with the class of peracephalous omphalosités of Geoffroy Saint-Hilaire. It lived as a parasite on the umbilical cord of the first foetus, the heart of the first doing work for both.

Signs and Symptoms of Early Pregnancy.

CH. VINAY (*Lyon médical*, May 17, 1896) discusses first the relations between ovulation and menstruation, and accepts Tarnier's rule for determining the date of delivery—viz., to add five days to the final day of the last menstruation, and count nine months forward from that date. The diagnosis of pregnancy during the first few weeks is difficult, the symptoms and signs being problematical. Of many symptoms—viz., cessation of menstruation, morning sickness, mammary changes, vaginal changes, and pigmentation changes—no one alone is conclusive, but if taken in conjunction they are strongly presumptive of pregnancy. Of these the most important is cessation of menstruation, especially in a young woman who has always been regular heretofore. Morning sickness is next

in importance. Breast changes are of importance in primiparæ only; the same is true of vaginal discoloration. Indications of greater certainty are the size, shape, consistency, and compressibility of the uterus itself. These changes appear about the sixth week of pregnancy. The volume of the uterus is increased, chiefly in its transverse diameter; its shape is more spherical, and ante flexion is greater. The body and fundus are distinct from the isthmus. The density of the body is reduced earlier than that of the cervix. Softening is most marked in primiparæ. Uterine contractions temporarily harden the tissues. Compressibility is obtained by Hegar's method as early as the fourth week, the lower uterine segment being compressible to extreme thinness. Care must be exercised not to injure the ovum. This test is best obtained in multiparæ, owing to the thinness of the abdominal wall, and their less resistance to pressure. In primiparæ and fleshy women it is difficult and often impossible to obtain it. When obtained, it is a very reliable sign of pregnancy.

GERMANY.

Gauze Tamponing of the Cervix Uteri for Persistent Vomiting of Pregnancy.

F. A. KEHRER, of Heidelberg (*Centralblatt für Gynäkologie*, April 11, 1896), reports the case of a woman, aged twenty-one years, pregnant for the second time. During her first pregnancy she suffered from perioöphoritis and uncontrollable vomiting until she aborted during the fourth month of gestation. The second and last pregnancy began one month after the abortion. Nausea and vomiting commenced two weeks afterward, associated with colicky pains in the abdomen, but no indication of perioöphoritis. One month later epileptic attacks occurred daily for about a month, the patient being confined to her bed by weakness with constant vomiting. All medication failed, including narcotics, sedatives, and tonics, with carefully regulated diet. At the thirteenth week of gestation it was decided that premature delivery must be induced, and to this purpose an iodoform gauze tampon was inserted into the cervical canal and renewed daily. Immediate improvement occurred, the labor pains were slight, the effort at abortion was abandoned, and for six weeks vomiting ceased. Occasional vomiting occurred until the twenty-sixth week of pregnancy, when persistent vomiting returned. Gauze tamponing was again tried; the vomiting was re-

lieved, but did not entirely cease. By the thirtieth week tamponing was again required for the same condition. At the thirty-third week the vomiting returned again, and it was thought best to induce labor, as the child was viable, which was done by the use of gauze tampons soaked in glycerin; two cervical incisions one centimetre each in length were required, as the cervix was very rigid; the labor terminated naturally by the delivery of a living child, weighing 2,350 grammes. Convalescence was normal. Reviewing the ætiology of persistent vomiting of pregnancy, the writer referred to pyloric stenosis, ulceration, and carcinoma to the reflex action of uterine displacements and ovaritis on an irritable nervous system, also to hysteria, and finally to reflex action from stenosis and irritability of the cervical canal. With regard to the treatment of the latter cause, he advocated tamponing with gauze the cervical canal, and, when this and all medicinal and dietetic measures fail, he urged the induction of premature labor.

Porro's Operation, with a Rhachitic Pelvis of Four Centimetres Conjugata Vera.

FRIEDRICH SCHWARZ (*Cent. für Gyn.*, April 11, 1896) reports the case of a rhachitic primipara at term, aged nineteen years, whose pelvic measurements were: Sp., 19 centimetres; cc., 19 centimetres; trochanteric, 26 centimetres; Baudelocque's, 12 centimetres; cong. diag., 5.9 centimetres; conj. vera, 4 centimetres. There was extreme lumbar lordosis and pendulous abdomen; the pelvis was contracted, flat, and highly rhachitic. When first seen by the writer the woman was exhausted, having a temperature of 40° C. and a pulse of 180. Vaginal discharge foetid, labor pains and rupture of membranes having occurred the day before. The foetus was alive and active, in vertex presentation. Porro's operation was at once performed under careful aseptic precautions. The uterus was incised in the median line, the foetus extracted and placenta detached, the blood vessels in the broad ligaments were ligated, and the uterus amputated above the cervix. The peritonæum was sutured over the cervix, the abdomen cleansed with hot sterilized water and closed, the whole occupying half an hour, with a minimal hæmorrhage. The child was mature and living, weighed 2,300 grammes, and measured fifty centimetres in length. The mother made a good recovery.

(W. T. CLEVELAND, New York.)

PÆDIATRICS.

UNITED STATES.

Results of Thyroid Treatment in Sporadic Cretinism.

F. PETERSON and P. BAILEY (*Pædiatrics*, May 1, 1896) remark that sporadic cretinism may rarely have its origin during intra-uterine life, so that the infant, myxœdematous at birth, either is stillborn or dies within a few days; more commonly, while the inception of the disease is prenatal, the process is slow, and the infant survives for some time; most common of all, however, are cases apparently normal until the fourth or fifth year, when disease of the thyroid develops with the symptoms of myxœdema. This myxœdema differs only from that of adults in that it is concerned with a growing organism, so that the bodily and mental stunting is very marked. The authors report the following case as probably cured: M. P., male, aged eighteen months; observed first June 25, 1895. Patient was of Hebrew-Hungarian parentage, and had four normal brothers and sisters. The child's appearance was distinctly cretinous, though the process was not far advanced; umbilical hernia was present; the child was unable to sit up, took no notice of its surroundings, said only "Papa" and "Mamma," with out knowledge of the meaning of the words; temperature, 97.2° F. Since the above date the child has taken daily one grain of the dried and powdered thyroid of sheep. In six weeks the child's bodily appearance had much improved, the hernia had disappeared, two teeth had been cut, the child sat up, laughed and played, took notice of its surroundings, and spoke several words. At the present writing we can call the child mentally and bodily normal. Another case, a female, aged fifteen, that was a typical cretin in every respect, during three months' treatment became thinner, grew two inches in height, cut several teeth, gained hair, assumed an intelligent expression, noticed her surroundings, played with a doll, and had increased her vocabulary from two or three to twenty-seven words. A third case, male, supposed to be between sixty and eighty years old, presented no change during two weeks' treatment except an improvement in temperature and circulation.

We perceive that there are degrees of cretinism varying with

the degree of the diminution of the thyroid secretion. Some cases we may call rudimentary, and such may be the condition, unrecognized, in some apathetic or feeble-minded and illy developed children.

From a study of cases of sporadic cretinism subjected to the thyroid treatment it appears that the myxœdematous symptoms disappear as rapidly in children as in adults; the treatment is attended with fewer difficulties and dangers, no deaths having resulted from it. In addition, a return of mental and bodily development has occurred, the latter more constantly and rapidly than the former; in only a few cases has the power of speech when previously absent been acquired. No case, however, has become physically and mentally the equal of normal children.

Thus no case has been reported cured in all respects. Still, none has been reported treated for more than one year and a half, and in most treatment was not instituted until the child was several years old and had for some time ceased to develop. It would seem that if treatment were begun at the outset of the disease, proper development would take place without myxœdematous symptoms so long as the thyroid was administered.

Pyelitis in Infancy.

D. I. WOLFSTEIN (*Archives of Pædiatrics*, May, 1896) reports the following case: Bertha A., born March 31, 1894, normal at birth. Family history non-tubercular and good, though the mother says she suffered in youth from some bladder trouble. In December, 1894, the child fell ill of a fever, which was pronounced malarial, but did not yield to quinine; after two weeks she apparently recovered, but had cloudy and ill-smelling urine. Febrile attacks occurred in January, May, and June, 1895. During these attacks, most markedly in the first, straining during micturition and vomiting had occurred, but never diarrhœa, bloody urine, or much pain. The child was first seen in August, 1895. There was no vulvo-vaginitis and no œdema, and though some loss of flesh had occurred, the child's general appearance was good. The urine was pale, distinctly acid; specific gravity, 1007; showed a trace of albumin and a considerable deposit of acid urates, pus, and epithelial cells, but no casts or red blood cells. A presumptive diagnosis of subacute pyelitis was made, and methylene blue was prescribed. Another febrile

attack occurred in September; the blood examination showed no plasmodia. At the end of a month the urine had lost its bad odor, but remained cloudy and contained pus and epithelium. The methylene blue was cut off, acetate of potash and citrate of lithia, with plenty of water, being substituted. Since then the urine has entirely cleared, and the child's general condition has improved. The following facts led to the diagnosis: 1. Remittent or intermittent febrile attacks, with rather long apyretic intervals, and without splenic enlargement, Laveran's organism, or benefit from quinine. 2. The characteristic urine; it was not that of cystitis; there was no tubercular history, nor could tubercle bacilli be found in the urine; vulvo-vaginitis, vaginitis, inflammation, or tumor of the kidney could be excluded. Regarding the cause, none of the factors recognized by Monti (which are chiefly the lithæmic state, tuberculosis, malformations of the external genitals, certain drugs, disease of vagina or bladder, infectious diseases, septic catheterization, chilling, wetting, etc.) seemed to be active in this case. The author thinks it possible that such a condition might be due to abrasion from uric-acid crystals and infarcts, passed during the first few days of life, these abrasions being followed by inflammatory action and infection from within. Though in this case a long time seems to have intervened, we do not know how long the pyelitis had been present unrecognized. As symptoms, Monti mentions (1) fever, especially of the remittent type; (2) mental aberration, due either to intense pain or to uræmia, and hence signaling the calculus form with obstruction of the ureter; (3) pain, which, if periodic or paroxysmal, is more significant of the calculus form; (4) vomiting in early stages, due either to pain or to fever or to uræmia; (5) characteristic urine. In this case the urine was of the color of water, and showed a deposit of urates, but no cells that looked like pelvic epithelium. In fact, the author does not think that such cells could be differentiated. The prognosis in idiopathic cases, as in those following the infectious diseases—chilling, wetting, etc.—is usually good. As regards treatment, the methylene blue removes the odor, but not the pus cells, and disturbs the stomach. The citrate of lithia was chosen in pursuance of Mendelssohn's theory that carbonate of lithia is converted in the stomach into the chloride, which latter has little diuretic value; while the salts of the organic acids, particularly the acetate and the citrate, are absorbed as such, and thus exert to the full their solvent and diuretic powers.

Some Notes on the Artificial Feeding of Infants.

DILLON BROWN (*Amer. Med.-Surg. Bull.*, May 9, 1896) remarks that the basis for all artificial infant food must be cow's milk, which must, of course, be from healthy and properly fed cows, and free from contamination and adulteration. It must be made to resemble human milk as closely as possible, its albuminoids being reduced by the addition of water, while cream and sugar are then added, the dilution with water being also compensated for. Such a modified milk should contain four per cent. of fat, seven per cent. of sugar, and one to two per cent. of proteids, and should be rendered alkaline by bicarbonate of soda or limewater. Meigs' method of preparing milk is as follows: From a quart of milk which has stood for three hours the upper pint is poured off; to three tablespoonfuls of the latter is added an equal quantity of a solution of milk sugar (3 xviii to water Oj) and two tablespoonfuls of limewater. Rotch's method seems better to the writer, and is prepared as follows: Let a quart of milk stand in iced water for six hours; then siphon twenty-four ounces from the bottom, leaving eight ounces of cream, which cream will contain ten per cent. of fat; "4-7-2" milk will then be obtained by mixing eight ounces of cream, two ounces and a half of milk, one ounce of limewater, eight ounces and a half of water, and nine ounces and a half of milk sugar. The Walker-Gordon process is valuable but expensive, and the home modification of milk seems to give the best results, wholesome milk being used without sterilization or pasteurization. It is well to remove the casein with rennet or dilute hydrochloric acid, and substitute the white of an egg, since, though cow's milk contains more casein than human milk, it contains less albumin. These combinations may be varied to suit the case. Farinaceous and milk foods are rarely indicated; in children with weak digestion the addition of Liebig's food to the milk is sometimes useful.

The Care of Children's Ears.

E. O. BELT (*Jour. of Prac. Med.*, May, 1896) comments on the frequency of deafness and deaf-mutism due to neglect. Perhaps fifty per cent. of the cases of deaf-mutism are congenital; for such the only prophylaxis would be non-marriage of persons closely related, or of those that have deaf-mute relatives. But many cases

of deaf-mutism due to early deafness and many cases of deafness are preventable. Exposure to the acute infectious diseases should be avoided, especially before the seventh year; and in the course of any of these diseases evidences of middle-ear trouble should be constantly watched for, such as earache, the peculiar cry, putting up of the hand to the ear, and discharge from the ear, especially with subsidence of the pain. Hot applications (dry or wet), menthol in olive oil, or a solution of morphine, atropine, and cocaine may be used, the latter, of course, only before the discharge begins; the ear should also be inflated with a Politzer bag. Such treatment will usually result in early recovery. In chronic otorrhœa, frequent cleansing with some antiseptic solution is of most importance, after which we may insufflate boric acid. Granulations may yield to instillations of alcohol; polypi must be removed; mastoid complications should be referred immediately to a specialist. Nasal and pharyngeal catarrh often set up by extension a chronic non-suppurative otitis media, and thus cause deafness; the hearing of such children should be frequently tested, and, while the catarrh is treated, the ear should be inflated and medicated with a globe nebulizer. Deafness may also be due to decayed teeth, which should receive appropriate treatment, and to cerumen, which can be syringed out with warm water, if necessary, after a preliminary softening overnight with a solution of soda bicarbonate. Cold applications should never be used upon the ear. Insects may be killed with sweet oil or glycerin, and then be syringed out like other foreign bodies. Hasty removal of foreign bodies being unnecessary, the general practitioner should use no forceps, probe, or spoon in the ear.

ITALY.

Morbillous Laryngitis of Infants.

A. MUGGIA (*Gazzetta Medica di Torino*, February 27, 1896) remarks the frequency with which the various infectious diseases of children are accompanied by laryngeal inflammation, recalling two cases of varicella, reported by Marfau, in which there was severe laryngitis with the development of varicellous pustules in the larynx. So also in measles laryngitis may be a prodromic symptom, appearing suddenly after the nasal catarrh and lasting throughout the disease. Coyne separates morbillous laryngitis into three varieties—*catarrhal*, *diphtheritic*, and

ulcerous—each with a different symptomatology. The catarrhal form is mild and like an ordinary catarrhal or stridulous laryngitis; the diphtheritic and ulcerous forms (which are often associated) are serious, often giving rise to laryngospasm and true laryngeal stenosis. The pathogenic agents may be various—streptococci, pneumococci, etc.; there may be, in addition, Klebs-Loeffler bacilli, with the development of true diphtheria. The following cases of this anomalous prodromic laryngitis are cited:

CASE I.—L. M., male, aged three years, was suddenly attacked (November 5th) with fever, severe harassing cough, hoarseness, and panting respiration, with laryngeal stridor; there was slight redness of the isthmus and pharynx, slight tonsillar swelling, some inflammation, localized in the hypoglottic (*sic*) region. A diagnosis of stridulous laryngitis was made. For several days there was no change; then the voice gradually almost disappeared, the eyes and face became more injected, there were frequent attacks of laryngospasm, of increasing severity, so that tracheotomy was advised. This measure was refused. A few hours later (November 17th), with decided general improvement, the morbillous eruption appeared; examination showed slight stomatitis, but no laryngeal or pharyngeal lesion, except some increased redness. The child was well six days later, the eruption having pursued a regular course. After the eruption appeared there was not one attack of laryngospasm, and the voice quickly cleared, though some loose cough and coryza remained. The treatment was that usual in stridulous laryngitis.

CASE II.—M. N., aged two years and a half, was suddenly attacked with slight fever, dry, barking cough, and hoarseness. There was nasal catarrh, some stomatitis, the hard and soft palates presented a diffuse redness, with small darker spots, and the pharynx was puffy. The epiglottis and laryngeal mucosa were reddened, and at several points turgid, as in ordinary catarrhal laryngitis. A few days later a brother and two sisters were attacked with measles of the ordinary type. The first child improved somewhat, but the local phenomena remained unchanged. Suddenly, on the sixteenth day, the eruption appeared and took its usual course.

CASE III.—In a family of three children, two of whom were convalescent from measles, the third, four years old, was attacked with fever, hoarseness, cough, and slight coryza. There were slight tumefaction and redness of the pharyngeal mucosa, and the objective signs of an acute catarrhal laryngitis. The expected eruption,

however, did not appear, and the child recovered in six days, except for the signs of a slight bronchitis. The infection in this case would seem to have been of a morbillous nature, though no eruption followed.

From these and other similar cases we may conclude: 1. In children an acute laryngitis, which may be of long continuance, occurs in connection with merely the prodromal symptoms of measles; if it is accompanied by hypoglottic (*sic*) alteration, it may give rise to serious suffocative symptoms; generally the appearance of the eruption is followed by improvement in the laryngeal affection. 2. Acute catarrhal laryngitis, accompanied by slight coryza, stomatitis, pharyngitis, and bronchial catarrh, may exist as the only manifestation of morbillous infection.

RUSSIA.

A Case of Laparotomy in the Newborn for Umbilical Hernia.

N. P. MARJANTSCHIK, of Kiev (*Cent. für Gyn.*, May 28, 1896), presents the following case, the thirty-second in literature since 1836, of laparotomy in the newborn for umbilical hernia: The mother, III-para, was in good health during pregnancy, but had had several falls in the first month. The presentation was footling, and the child was born, with manual assistance, in a condition of asphyxia. The membranes and cord were normal. The child, a female, presented in the median line a hemispherical tumor, eight centimetres in length by six centimetres in width, the upper border reaching nearly to the ensiform, the lower passing over into the cord, the base surrounded by a thick ring of cicatricial skin. The walls of the inclosing sac were thin, transparent, of a bluish color, due to the underlying liver, and made up of peritonæum, together with amnion and Wharton's jelly. Complete reduction was impossible. The tumor increased in size when the child cried, but was present before the first respiration, having been observed during delivery. By the following day the surface of the sac had become dull, yellowish-green, and non-transparent. Laparotomy was then performed, with all antiseptic measures, as follows: An incision was made through the median line of the sac, the skin remaining untouched; the amnion was dissected off, but, inasmuch as mummification had already begun, the peritonæum was lacerated in several places; the umbilical vessels were detached from Wharton's jelly, ligated and divided; the peritonæum, being injured, was removed

throughout the circumference of the tumor; the viscera—liver, omentum, and intestines—which now prolapsed, were with difficulty replaced and retained by compresses; the cutaneous borders were denuded in places and sutured, the sutures, sixteen in number, passing through the entire abdominal wall and peritonæum; four superficial sutures were added; the operation lasted fifty-five minutes; considerable cyanosis occurred, but disappeared. The child slept most of the day and night, crying chiefly during evacuations. On the third night it was very restless, and had a temperature of 39.7° C. On the fourth day it was better, but on the fifth the temperature again rose, the child grew very weak, and died. Shortly before death the wound was examined; union had taken place, no pus was found, and there was no abdominal distention. From the third day on brandy had been given by mouth and, in larger doses, by rectum. Food had been regularly taken, and had had a calming influence; deglutition had been easy up to an hour and a half before death. The evacuations (spontaneous and after enemata) had consisted during the first three days of meconium; on the fourth they were normal, and on the fifth dyspeptic. The slight jaundice which had appeared on the second day had begun to disappear by the fourth day.

Is operation indicated in these cases? The possibility of cure has been shown by occasional spontaneous recoveries; but seeing that a favorable natural outcome can not be relied on, that fact serves only to indicate that we should take operative measures in the same direction, the expectant treatment (protection, pressure, etc.) being suitable only in case of the child's non-viability either from anomalies of other vital organs or from too great defect in the abdominal wall, with too many organs in the hernial sac.

As to the best time for operation: There seems to be no advantage in delay, but only disadvantage; for if we wait until mummification of the funicular tissue has occurred, the amnion becomes fragile, we are in danger of cutting together with it the peritonæum and underlying structures, the dissection is more difficult, and often with the amnion parts of the peritonæum are torn off.

Regarding the method of operation: Four kinds are open to us: (1) Common ligature, (2) percutaneous ligature, (3) extraperitoneal covering of the defect with preservation of the peritoneal sac, and (4) laparotomy with removal of sac and peritonæum. The first method is suitable (a) in hernias with slender necks, and there-

fore with small defect in the abdominal coverings, and (b) in hernias with easily replaceable contents, in which no agglutination or incarceration has taken place. Percutaneous ligature, proposed for umbilical hernia with large defect of the abdominal wall, is done as follows: At the point in the ring where the skin passes over somewhat into the sac a hæmostatic forceps is applied, the tissues grasped are ligated in several small bundles, and the whole sac removed by scissors. The objections are (a) the loss of tissue grasped by the forceps, which increases at once the defect and the tension, and (b) the danger of wounding or including some underlying structure. This procedure results in radical cure, but is dangerous and rarely done. The third method (Olshausen's) is as follows: We freshen the cutaneous borders, dissect away the amnion and Wharton's jelly, and then suture the cutaneous borders over the peritonæum invaginated in the abdominal cavity; or (Dohrn's modification) we dissect away the amnion and Wharton's jelly, replace the hernial contents, suture the opposite walls of the sac linearly, and, dividing the sac above the suture, freshen and unite the cutaneous borders; or (Benedict's modification) we proceed as in Olshausen's method, merely adding relaxation incisions in the abdominal wall. None of these procedures is radical; besides, in Dohrn's method there is danger of injuring the viscera, while in Olshausen's and Benedict's methods an empty space is left between the sutured skin and the invaginated peritonæum. Aside from these objections, Benedict's is the most advantageous method in otherwise normal children with large defect of the abdominal wall and considerable tension, cases in which formerly only protection or pressure was employed.

The fourth method—laparotomy—is the best. It is applicable to hernias upon narrow or broad bases; it is radical, its mortality is smaller, it permits ocular demonstration of what we have to deal with. Of objections to this method the greatest is the possibility of prolapse of the abdominal viscera, with resulting chilling and drying thereof, together with possible infection from handling and from exposure to air. This may be obviated by performing the operation thus: Begin the freshening of the cutaneous borders from the point where the peritonæum is exposed, commencing, for instance, at the upper angle, carry the freshening one to two centimetres and open the peritonæum to an equal extent; then unite the freshened places by button sutures. Proceeding in this manner little by little, the abdominal cavity is open for only one to two

centimetres at any one time, and prolapse can be readily controlled. Another complication—not, however, peculiar to this operation—is cyanosis and asphyxia, due to interference with the diaphragm, caused by the simultaneous increase of the contents of the abdominal cavity and decrease of its capacity from the closure of the hernial opening. The organism, however, soon accommodates itself to the change.

To recapitulate: (1) If the defect of the abdominal wall is so large that the danger of bursting the sutures or even the impossibility of uniting them is imminent, we must, (*a*) in viable children, follow Benedict's method; (*b*) in non-viable children, content ourselves with expectant treatment (antiseptic, protective, or pressure bandages); (2) if the hernial opening is very small (*a*) with replaceable contents, we should use ordinary ligature, (*b*) with contents which can not be replaced; or (3) if the hernial opening is of medium size, we should at once perform laparotomy.

The fatal result in the case reported may have been influenced by (1) the difficult dissection of the amnion, which necessitated the removal of the peritonæum, (2) the prolapse of the viscera, (3) the size of the hernia and the increase of abdominal pressure on its return. The immediate causes as shown by the autopsy were peritonitis and gastrocolitis, neither marked clinically. The wound was firm and practically healthy. The peritonæum was hyperæmic, in places covered with a fibrinous exudate, and there was some matting together of the abdominal contents. Effusions of blood were found in the mucosa of stomach and large intestine, more marked in the latter than in the former, and most marked at the latter's lower end. An efficient cause of the peritonitis would be the chilling and drying of the abdominal organs in the operation. Inasmuch as the lesions in the stomach and large bowel corresponded in degree to the different quantities of brandy administered by each channel, while the small intestine was entirely free, the conclusion is reached that the changes in these organs must have been due to the local action of the brandy. The autopsy also revealed a rudimentary spleen.

We may conclude that all cases of umbilical hernia in viable children should be operated upon, and as early as possible, the choice of method being governed by consideration of the defect in the abdominal wall and of the possible existence of adhesions. Percutaneous ligature is to be condemned. The best method is lapa-

rotomy, as above limited and modified. Alcohol is contraindicated in infants.

GREAT BRITAIN.

Congenital Teeth, with Three Illustrative Cases.

J. W. BALLANTYNE (*Edin. Med. Jour.*, May, 1896) reports in detail three cases. The first is described by Vargas: the child at birth presented in the situation of the right central incisor of the lower jaw a hard, movable tumor, covered with mucous membrane, which interfered with lactation, and which on removal proved to be a tooth. It had not been fixed in its alveolar cavity, but was fangless, and had been inclosed in an extra-alveolar dental sac. The second case (the author's own) presented two lower central incisors, thin discolored scales, which caused no trouble, and probably dropped out with the appearance of the new incisors at the seventh month; there was some tubercular history in the family. The third case (Dr. Buist's) presented two lower central incisors, which were loose, and dropped out within the first month; they had not been replaced at the end of two years and a half.

Apropos of these cases, the author quotes some curious traditions and theories regarding congenital teeth. Several famous personages are said to have been born with teeth; such teeth were considered fortunate in a boy, but unlucky in a girl. Weinrichius (1595) found a cause for the anomaly in the determination of a large quantity of serum of great vital activity to the spot where the teeth are formed! There are in Shakespeare's plays several references to the belief that Richard III was born with teeth.

We may conclude that congenital teeth, though rare, have long been known. From a study of reported cases we may remark: Congenital teeth are usually the central lower incisors, though upper incisors and most rarely molars have been observed; they are usually poorly developed, movable, soft, and discolored. Sometimes they have caused no trouble, but generally they injure the mother's nipple, interfere with suction, and may give rise to sublingual ulcers. Usually these teeth soon fall out, and usually, too, are not replaced until the second dentition; sometimes, however, they are replaced by milk teeth, thus being supernumerary as well as premature. The ætiology is obscure; we may note that two cases are reported whose mothers had congenital teeth; in three cases there was a tubercular family history. Most of the subjects were delicate, and several pre-

sented cleft palate or other facial or buccal anomalies. There seems to be no correlation between congenital teeth and mental activity. Strictly premature teeth may be due to various causes, as excessive development, absence of fang, atrophy of the gum, or intra-follicular inflammation. Vargas' case was peculiar, being really a malformation, which we might call ectopia of the dental follicle. Treatment consists in removal in those cases in which the teeth give rise to trouble; in other cases they may be allowed to remain.

Observations on Mental Affections in Children.

W. W. IRELAND (*Edin. Med. Jour.*, May, 1896) defines porencephaly as that deformity of the brain in which there is a communication between the lateral ventricles and the surface of the hemisphere; it has been divided into true and false, or, better, congenital and acquired. The true usually dates from the fifth to the seventh month of intra-uterine life, while the false is due to a giving way of the lateral ventricles after birth from a destructive lesion between the same and the surface. In true porencephaly the opening generally occurs in the part of the brain supplied by the middle cerebral artery. The gyri most affected are the third frontal, the ascending frontal and ascending parietal, the gyrus supramarginalis, and the first temporo-sphenoidal. The arachnoid bridges over the cavity, while the pia mater descends to line the walls down to the ependyma of the ventricles, the bared gyri radiating from the depth of the pit. The cavity is usually filled with clear serum. Generally both sides are involved, and there is idiocy and usually mutism; sometimes only one side is affected, accompanied with paralysis of the opposite side of the body. The basal ganglia on the affected side are smaller; secondary descending degenerations do not seem to have been often observed, though frequent in the acquired variety. Sometimes the cranial bones present asymmetry or arrested growth. No satisfactory cause for the condition has been assigned; there are no traces, as in the acquired form of an inflammatory process, and we can only say that there seems to be an insufficiency of formative force.

Dr. Ross describes the following case in a little girl who died of croup at the age of two years and a half: The child was small, but fairly nourished, and never had convulsions. The legs were held flexed, the feet extended and heels drawn up; the arms were sym-

metrically semiflexed; the muscles of the extremities were in a condition of spasmodic rigidity, and attempted passive motion caused increased spasmodic contractions; the head was kept bent forward, though the child could raise it. She could utter only a few monosyllables. On autopsy, a deep sulcus was found on each side of the brain about the site of the fissure of Rolando, each opening into the corresponding lateral ventricle. The ascending frontal and ascending parietal appeared to be absent, and the surrounding gyri were displaced. On microscopical examination, the gray matter surrounding the cavity was observed to be similar in structure to the normal; the inner division of the third layer, however, was destitute of giant cells, but contained large round, nucleated cells without processes; indeed, absence of processes was a marked feature of all the cells. The anterior pyramids of the medulla and the lateral columns of the cord were small. Another case, a girl of sixteen years, who died of phthisis, presented paresis of the right side, but no defect of intellect save a weak memory. Toward the upper half of the fissure of Rolando were found two cysts, the upper one communicating with the lateral ventricles. We may conclude that unilateral porencephaly alone, unless extensive, does not cause idiocy. Sambl, in fact, has described a case of one-sided porencephaly in a girl who showed unusual cleverness, and came to be regarded by the peasantry as a witch; she had some paralysis of the right side, with divergent strabismus and nystagmus.

Acquired porencephaly is due to a giving way from softening, hæmorrhage, or other lesion of the area of the cortex supplied by the Sylvian artery; sometimes the parts supplied by the anterior or posterior cerebral are involved. The case is quoted of an eighteen-year-old girl, in good health, who suddenly became paralyzed on the right side and aphasic. Paralysis of the arm persisted, and epileptic seizures followed. A year later she began to learn to speak. She died at the age of sixty-three. The autopsy revealed in the left hemisphere a loss of substance in the area of the insula and operculum extending into the left lateral ventricle; the cavity was filled with serum, and lined with a rough, brownish membrane. Some of the neighboring convolutions were contracted or destroyed; others appeared healthy. There was descending degeneration. Another case occurred in a woman sixty-two years old, dating from an attack of paralysis four years before her death. Epileptic seizures, and afterward insanity, followed the paralysis. The post-

mortem revealed in the right hemisphere a cavity extending from the middle third of the horizontal ramus of the Sylvian fissure to almost the end of the occipital lobe. There was also descending degeneration.

Discussing sclerotic idiocy, the author gives as the predisposing causes the tubercular diathesis, neurotic tendencies in the progenitors, and alcoholism; and as exciting causes, accidents befalling the mother during pregnancy, difficult and prolonged labor, asphyxia, and injury to the head of the child after birth. Regarding the pathology, several varieties have been described, the chief of which are the atrophic and the hypertrophic, the latter being the most destructive. The scattered whitish masses are seen elevated above the cortical tissue, which part of the brain is mainly affected; the gyri are crowded against one another. In the atrophic form the shrunken cortex reminds one of the lesions in general paralysis. This affection generally shows itself during the first twelve months. There are repeated spasms, sometimes implicating particular groups of muscles or passing into general convulsions; the patellar reflex is exaggerated. The frontal and occipital lobes seem to be most often affected; sometimes the convulsions are predominant on one side, supposedly due to invasion of the motor cortex. Following is loss of power, with paralytic attitudes, or more or less hemiplegia, with contractions, which can usually be undone. There are atrophy of the brain and the usual symptoms of idiocy, which is sometimes very profound, and may be accompanied by blindness. We distinguish the disease from epilepsy by the contractures following repeated convulsions, and by the absence of sudden paleness, aura, cry, and stertorous respiration; and from meningitis by the absence of grinding of the teeth, bursts of rage, cries of pain, and boring of the head in the pillow. We note that the head is generally small, sometimes deformed; the palate is generally normal. Prevalence of the fits and increasing mental torpor mark the spread of the disease. Temporary arrest may occur, but real improvement scarcely ever. Death usually takes place before puberty.

(A. D. CHAFFEE, New York.)

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A CLINICAL REPORT ON THE COURSE OF
PREGNANCY AND LABOR AS INFLUENCED BY
SUSPENSIO UTERI.*

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The study of the influence upon pregnancy and labor of suspensio uteri or ventrofixation of the uterus has recently engaged the attention of practitioners both in this country and in Europe. Prominent among papers calling attention to this subject may be mentioned Milander's (*Zeitschrift f. Geb. u. Gyn.*, vol. xxxiii, No. 3) and Edebohls' (*Medical News*, March 14, 1896). I read a paper upon this subject before the American Gynæcological Society, May 27, 1896 (*Amer. Jour. Obst.*, vol. xxxiv, No. 2, 1896), in which eight hundred and eight cases of suspensio uteri were reported, with fifty-six pregnancies. These cases were collected by private correspondence from prominent American operators. From the material thus gathered, and from my own personal experience with pregnancy following this operation, I submit the following facts and conclusions for your consideration:

Dr. J. Chalmers Cameron furnished me the following interesting report of a case of vomiting of pregnancy apparently due to ventrofixation of the uterus:

* Read before the Philadelphia Obstetrical Society, October 1, 1896.

" MONTREAL, March 25, 1896.

" . . . Last summer I had a peculiar case in the Montreal Maternity, in which I had to induce labor for the relief of uncontrollable vomiting, with progressive emaciation and threatening fatal exhaustion, in a woman who had ventrofixation performed two years previously. In four previous pregnancies she had not suffered from any special difficulty, and had gone to full term. Of course, I can not say positively that the symptoms were wholly referable to the operation, but I am inclined to attribute them in great measure to that cause. I give you a short synopsis of the case:

" Mrs. W., aged thirty-four years, V-para (four previous labors at full term); last menstruated from November 25th to December 2, 1894. She is a thin, spare woman, of nervous temperament. Menstruation began at fifteen years; was always moderate in amount and painless till after ventrofixation, when it became painful. The pain was felt all over the abdomen, and especially severe in the epigastrium; latterly, it never wholly subsided, but was much aggravated during the menstrual periods. Early in December, 1894, she lost her appetite and began to vomit, and at last was unable to take food of any kind without provoking a severe attack of vomiting, which caused much suffering. She became so weak and emaciated that she entered the R. V. Hospital for treatment on May 26, 1895. Very small quantities of malted milk were administered, and rectal nutrient enemata of peptonized milk and brandy every four hours. The vomiting was relieved, but the epigastric and abdominal pain continued and emaciation progressed. She was finally transferred to the Montreal Maternity, on June 12, 1895, for the induction of labor, her life being considered to be in danger. On June 13th a bougie was passed well up into the uterus on the right side without effect. On the 14th another was passed on the left side without effect. On the 15th another was passed posteriorly, each bougie being left *in situ* for twenty-four hours. Some hours after the third bougie had been passed slight pains set in, but ceased in a short time, there being no expulsive effort on the part of the uterus. When the third bougie was removed the os was found to be dilated sufficiently to admit the tips of three fingers. There was no uterine contraction going on, and pressure upon the fundus provoked nausea and faintness, and was accompanied by considerable pain. The membranes were ruptured, and the patient was much relieved.

Podalic version was performed, and the child (living) delivered without much difficulty. When the leg was brought down through the os and traction made upon it, nausea, faintness, and pain returned; when traction was stopped, these symptoms disappeared. Each traction brought on these symptoms. After the uterus was emptied there was no further vomiting or nausea. Her condition for a time was critical from her great prostration, but she eventually made a good recovery, and left the Maternity freer from abdominal pain than she had been for many months. She remained under observation till July 31st. Menstruation returned, but was painful, and accompanied by nausea and faintness and abdominal pain as before. I am inclined to attribute these symptoms to reflex irritation, from stretching of the artificial ligament made by ventrofixation. The phenomena of labor are interesting—dilatation of the os, with regularly recurring labor pains ceasing after a time, and failing to develop any expulsive character; nausea, faintness, and pain when the fundus was depressed by the hand (probably from stretching or pulling upon the ligament); also a recurrence of similar symptoms whenever the leg was drawn down; after the uterus had been emptied, pressure upon the fundus did not cause pain or bring on unpleasant symptoms; then rapid convalescence and a recurrence of the old pain and tenderness when menstruation returned seem to point to some reflex irritation which did not exist before ventrofixation, as menstruation previously had always been painless and without discomfort."

So far as I know, this is the only case on record in which severe vomiting of pregnancy has been attributed to ventrofixation. The evidence in this case is satisfactory that such a result is a possible outcome of the operation. The well-known obscurity of the pathology of this disorder, and the fact that this is the only case on record, would indicate that this complication will be met with very infrequently.

The reports of foreign authors and the cases which I have collected indicate that suspensio uteri has little or no influence upon the production of abortion. There have been about ten per cent. of abortions among the cases of pregnancy reported, which does not vary greatly from the usual proportion.

The following reports of my own cases illustrate the various phases of the course of labor in pregnancy following suspensio uteri:

CASE I. *Normal Labor*.—Mrs. P., aged thirty-five years, had the left uterine appendage removed and suspensio uteri performed July 4, 1892. Her health continued good until 1895, when she married. On October 4, 1895, she menstruated for the last time. The course of her pregnancy was normal. She consulted me when seven months pregnant. A careful examination failed to show that the operation had any influence whatever upon the development of the pregnant uterus. The fundus occupied its normal position, and no band could be felt running toward the abdominal cicatrix. The cervix occupied its normal position in the pelvis, and the head of the foetus was already well engaged. The patient was given a prognosis that her labor would not be influenced by the operation. She entered the University Hospital for delivery. Dr. Goodrich, resident physician, has kindly furnished me the following notes of her lying-in:

“Primipara; weight on admission one hundred and forty pounds; height, five feet five inches and a half; date of last menstruation, October 4, 1895. Family and personal history and general condition during pregnancy are good. The urine is normal. Physical examination of patient, including pelvic measurements, shows her to be a normal woman.”

The following is copied from the hospital notes on progress of labor: “Patient says that she fell in labor at 2 A. M., July 20, 1896; but she did not report it to the nurses until about 10 A. M., when the pains became frequent and severe. The membranes must have ruptured before she was given her bath. Labor was normal in every respect as regards its progress. The head engaged in right-occipito-posterior position, then, upon reaching the pelvic floor, the occiput, which was directed to the right and posteriorly, swung forward through an arc of 135° under the pubic arch. The perinæum being quite rigid, it required some little time for the expulsion of the head, which, however, was accomplished without laceration of the perineal body. The placenta was expelled twenty minutes later, gentle expression being required.

“August 4, 1896.—Discharged to-day, after examination *per vaginam*. Urogenital tract normal. This patient had ventrofixation done by Dr. Charles P. Noble four years ago. The uterus is now slightly anteflexed, and can plainly be felt in good position through the abdominal wall.”

Dr. Goodrich adds: “Though nothing has been said of it in the notes, during her labor, and especially at the height of a pain, she

complained of a great tenderness and tugging in the abdomen at the upper part of the scar of incision; and at the latter part of her puerperium, while at the hospital, she felt something slip, and was sure her uterus must have gone back into its old position.

"Her baby was a female child of eight pounds at birth, with an F. O. circumference of fourteen inches and a half. There were no malformations, and her condition was good. The puerperium of fourteen days was normal."

Mrs. P. consulted me September 15, 1896, when, on examination, her pelvic organs were found in good condition, the uterus being forward and lightly attached to the abdominal wall. Upon inquiry, the patient stated that she felt no adhesion between the uterus and the anterior abdominal wall during labor, but that she did during the manipulations of the uterus after labor. This is a slight discrepancy between her report and that noted by Dr. Goodrich. She stated that it felt as though the uterus was being torn away from the abdominal wall, when it was kneaded after the delivery of the placenta to insure contractions.

CASE II. *Powerless Labor.*—Mrs. E., aged twenty-seven years, primipara, consulted me, October 22, 1894, for the relief of symptoms due to laceration of the cervix and perinæum, and to a diseased and adherent right ovary and tube. On December 31, 1894, I repaired the lacerations, opened the abdomen, separated adhesions, and removed the right ovary and tube. To prevent adhesion of the uterus to the raw surfaces which were left in the pelvis, it was lightly attached to the abdominal wall in closing the abdominal incision. Mrs. E. made a good recovery, and after a few months became pregnant. She was delivered of twins on December 29, 1895, by Dr. Mary H. McLane, of St. Louis, who furnished me with the following report of her labor:

"Labor began at 1 A. M., December 28th, with rupture of the membranes. Some dilatation took place, and liquor amnii was discharged at intervals during the 28th. The pains were infrequent and feeble. There was very little change until the morning of the 29th, when it was considered best to dilate the cervix manually and to deliver with forceps, because of the weakness of the foetal heart beats. (A diagnosis of twins was made before labor.) A cyanosed baby was delivered with forceps, and later the twin was delivered with forceps. After the delivery of the placenta the contractions were very feeble, and hæmorrhage was considerable. Hypodermics

of strychnine and ergotine and kneading of the uterus failing to control the bleeding, the cavity of the uterus was packed with sterilized five-per-cent. iodoform gauze. Slight lacerations in the cervix and perinæum were then repaired. The mother and children made good recoveries."

On inquiry from me, Dr. McLane reports that during labor the cervix was high in the pelvis, and that the os pointed directly toward the sacrum. No tumor, however, could be felt at the brim of the pelvis. Aside from the position of the cervix, the only thing abnormal in the labor was the inefficiency of the pains.

This case of powerless labor may be attributed either to the hysterorrhaphy or to the presence of twins. Powerless labor is not infrequently a result of overdistention of the uterus, so that the real cause of the condition in this case is uncertain.

CASE III. *Labor obstructed by a Tumor at the Superior Strait, consisting of the Imprisoned and Hypertrophied Fundus and Anterior Wall of the Uterus; High Forceps Delivery.*—Mrs. A., aged twenty-three, multipara, was operated upon by the writer May 22, 1893. Her uterus was curetted, lacerations of the cervix and perinæum were sewed up, a painful and prolapsed right ovary was removed, and the retroverted uterus was attached to the abdominal wall by buried silkworm-gut sutures. She became pregnant, and was admitted to the Preston Retreat for her confinement, under the charge of Dr. Richard C. Norris. This case was reported by Dr. Norris in *The American Journal of Obstetrics*, vol. xxxii, page 938. Dr. Norris says: "After several hours of ineffectual labor pains, I examined the patient, and was surprised to find what at first appeared to be a uterine fibroid resting above the symphysis pubis, and seriously obstructing the pelvic inlet. The true character of the tumor was made apparent when I recognized that it alternately hardened and relaxed with each recurring uterine contraction. The buried silkworm-gut stitches of the ventrofixation were plainly felt through the abdominal wall at the upper margin of the mass of hypertrophied muscle. It was apparent that the anterior uterine wall, fixed with the fundus by the sutures, had practically been folded on itself during its physiological hypertrophy throughout pregnancy, and now formed a tumor obstructing delivery. No presenting part was felt through the cervix. The patient was etherized, and a careful examination was then made. The posterior uterine wall, which formed almost the entire uterine sac, was so thinned that the intes-

tines, containing faecal masses, could readily be felt by the hand in the uterus. Realizing the imminent danger of rupturing the uterus, the position of the child was carefully determined. Its head was high on the left, occupying the position of the mother's spleen. The child's breech lay in a depression between the upper margin of the mass of muscle and the upper anterior uterine wall. The feet and legs were in contact with the anterior uterine wall.

"It was absolutely impossible, without violence, to carry my hand around the obstruction and grasp a foot, or to dislodge the breech from the depression in which it was resting. Realizing the danger of rupturing the uterus, cephalic version was cautiously performed, and the head crowded between the sacral promontory and the obstructing mass of muscle. A very high application of Tarnier's forceps enabled me to deliver the child, when I discovered that the umbilical cord had been compressed between the child's head and the mass of muscle above the symphysis. The infant, in consequence of this accident, perished. The patient's puerperium was normal. The uterus involuted properly, and remained fixed to the anterior abdominal wall by the silkworm-gut sutures."

CASE IV. *Labor obstructed by a Tumor at the Superior Strait, consisting of the Imprisoned and Hypertrophied Fundus and Anterior Wall of the Uterus; Delivery per Vias Naturales Impossible; Porro-Cæsarean Operation.*—Mrs. L., aged thirty-seven years, V-para, was operated upon by the writer September 13, 1894. A placental polyp was removed and the uterus curetted. The abdomen was then opened, adhesions broken up, a diseased ovary and tube removed, and the uterus attached to the abdominal wall by buried silkworm-gut sutures. Mrs. L. became pregnant in February or March, 1895. On December 1, 1895, she consulted me, when the following conditions were present: Her general appearance was healthy, and she was evidently at full term of pregnancy. The abdomen was unduly prominent, the fundus evidently being held down by the abdominal sutures, which caused an undue projection in the lower part of the abdomen. The cervix was found to be high up in the hollow of the sacrum. On inquiry, the patient stated that she had had some pelvic distress early in the pregnancy, and that recently she felt as though the womb was being drawn downward and forward.

Mrs. L. fell in labor January 2, 1896. She was attended by Dr. William E. Parke. Labor began by rupture of the membranes and discharge of the liquor amnii. The pains were trifling in character

for about twenty-four hours, when I saw her in consultation with Dr. Parke. The ordinary vaginal examination failed to discover the cervix uteri, and it was only when the half hand was introduced into the vagina that the anterior lip of the cervix could be felt. Under anæsthesia the os was found undilated but dilatable, and opposite the sacral promontory. It was also found that a large tumor blocked up the inlet of the pelvis. This evidently was constituted by the hypertrophied fundus and anterior wall of the uterus held down by the abdominal sutures. The tumor made a shelflike projection on which the buttocks of the foetus rested. It was quite easy to reach around the mass and to feel with the finger tips the feet and parts of the legs, but it was impossible to grasp a leg to bring it down. Further attempts to deliver were discontinued for ten hours, in the hope that the obstruction would soften down. Dr. Parish then saw the patient, and also failed to bring down the feet. No alternative existing, the Porro operation was performed. Unfortunately the patient became infected during the attempts to perform extraction, and at the time the Porro operation was done her temperature was 103° and her pulse about 130. She died on the seventh day of general septicæmia.

The foregoing reports illustrate the various complications which have been met with in pregnancy and labor following suspensio uteri, and also a normal labor after the same operation. In my previous paper (already referred to) forty-three American cases of delivery were reported at full time. Of these cases, three were delivered by forceps and one by the Porro operation, two had retention of the placenta, and one labor was induced on account of uncontrollable vomiting. In other words, in seven cases complications were met with, and in thirty-six the labors were entirely normal. In the one hundred and thirty-three full-term labors reported by foreign writers, in eighteen cases labor was complicated as follows: Artificial extractions, two; forceps delivery, eight; versions, five; and Cæsarean sections, three. In more than eighty-five per cent. of the cases labor has been absolutely normal. In about two per cent. delivery has been impossible by the natural passages, and in the remaining cases difficulties have been met with which were overcome by the ordinary resources of obstetrics.

The foregoing cases constitute my entire experience with pregnancy following suspensio uteri, and they, together with the case kindly furnished me by Dr. Cameron, illustrate every phase of the

question. They have been grouped together in this clinical report to serve as a basis for the remarks which follow.

The difficulties during pregnancy and labor bear a direct relation to the extent of the attachments between the uterus and abdominal wall, and also to the location of these attachments upon the uterus. The higher grades of dystocia have been due to the formation of a tumor which blocked up the inlet of the pelvis, and which itself was formed by the hypertrophied fundus and anterior wall of the uterus held down by the sutures attaching the uterus to the anterior abdominal wall. When this attachment is firm and extensive, and is between the posterior portion of the fundus uteri and abdominal wall, the entire fundus and anterior uterine wall are imprisoned below the point of suture, and therefore can not take part in the development of the pregnant uterus, which must expand through the development and overstretching of its posterior and lateral walls. In the most extreme cases the bulk of the mass of hypertrophied tissue has been sufficient to make an absolute obstruction to labor. In the less marked cases this obstruction has been more or less great. In all of these cases the cervix is pulled up out of the pelvis, either relatively or absolutely. The practical deduction to be drawn from these facts is, that women having been subjected to the operation of suspensio uteri, and who have become pregnant thereafter, should be examined from time to time during the course of pregnancy, more especially about the seventh and eighth months; and if the cervix be found to be drawn up out of the pelvis, and especially if a mass of muscle constituting an obstruction to the inlet of the pelvis can be made out, labor should be induced from four to six weeks before full time.

It is not my purpose at this time to discuss the relation between technique and difficulties in labor. Further experience must determine whether or not it is true, as I believe, that these difficulties can be reduced to a minimum by the technique employed. While this problem is being solved I shall myself shorten the round ligaments, in preference to doing suspensio uteri, in all cases in which it is unnecessary to open the abdomen for some condition other than the retrodisplacement of the uterus, when operating upon women of childbearing age.

1637 NORTH BROAD STREET.

CLINICAL OBSERVATIONS ON VENTROFIXATION
OF THE UTERUS.*

BY JOHN M. FISHER, M. D.,

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Ventrofixation in cases of retrodisplacements of the uterus is now a well-recognized plan of treatment with operative gynæcologists in general, but there still exist wide differences of opinion among individual operators upon the particular technique necessary to secure the much-desired and requisite secondary result of the operation—viz., ligamentous suspension and free mobility of the organ.

The main object of this paper is to present a clinical study of a few cases which, if considered in connection with the more extensive observations of others, may prove of value in solving this frequently debated question.

The first case—a ventrofixation of the uterus, followed by secondary cœliotomy five months subsequently—is of special interest. Mrs. W., aged twenty-seven years, multipara, was admitted to the Jefferson Hospital, January 16, 1896, suffering from metrorrhagia and violent dysmenorrhœa, and other symptoms common to pelvic disorders. The uterus was enlarged and retrodisplaced. The necessary operation was performed by Professor Montgomery. The uterus was curetted, antiseptically treated, and packed with gauze. Abdominal incision; no adhesions. The uterus, after being raised into an anterior position, was fixed by two silkworm-gut sutures passed through the superficial structure of the organ, one on a line with the attachment of the tubes, and the other a little below the fundus posteriorly, the ends of both sutures being finally carried through the peritonæum, muscle, and fascia on either side of the abdominal incision and tied. The abdominal opening was closed with through-and-through sutures. The patient made a good recovery, and, after returning to her home, continued to do well for

* Read before the Philadelphia Obstetrical Society, October 1, 1896.

a period of two months, when she began to suffer from violent pains in both groins. She grew worse with time, and returned to the hospital June 17, 1896 (five months after the operation). Sub-acute salpingitis was diagnosed. Upon opening the abdomen, the uterus was found to be suspended in a normal anterior position by a fibroserous band about three quarters of an inch in length, constricted and cordate at its middle, with fan-shaped extremities attached to the fundus uteri and anterior abdominal wall. The suspended organ was freely movable, and evidently subject to all the physiological variations of position of a normally poised uterus, save that of retroversion. The original fixation sutures could be felt encysted immediately beneath the abdominal attachment of the utero-suspending band. That neither of the sutures had given support to the uterus save for a comparatively short period following the operation was evident from their location. Both tubes were markedly swollen, tortuous, and intensely congested. The ovaries were enlarged and microcystic. There were no adhesions. Both appendages were removed. Abdomen closed without drainage. Patient made a satisfactory recovery. To what extent, if at all, the appendages appeared diseased at the time of the previous operation can not be determined from the hospital records, nor can I conceive the possibility of pathological changes in these structures as a result of the uterine suspension. The history of the case certainly points to infection from the cavity of the uterus three months subsequent to the operation. The points of special interest in connection with this case are:

1. The position and evident uselessness of the buried fixation sutures in sustaining the organ after once securing firm parietal adhesions.
2. The length, form, and character of the utero-suspensory ligament that obtained five months after the ventrofixation, and its possible influence on pregnancy and labor.
3. The position and mobility of the uterus and its influence on the pelvic circulation.

While the result in this case in so far as the uterus itself was concerned was all that could be desired, it yet remains a matter of common observation that ligamentous suspension of the organ after the introduction of buried fixation sutures does not always follow. In fact, cases in which the organ remains permanently fixed at the site of abdominal contact are comparatively numerous, and, when-

ever this condition does obtain, it is an abnormality likely to give rise to equally as distressing symptoms, and often more so, than were those previously associated with the displacement for the correction of which the operation was performed. This was well exemplified in a patient at the Jefferson clinic a few months ago. She had undergone ventrofixation several months previously at the hands of a gynecologist who, in doing this operation, is in the habit of pushing the abdominal peritonæum outside the line of suture, and fixing the uterus with buried stitches directly to the fascia and muscular structure. Upon examination, her uterus was found to be immovably fixed to the anterior abdominal wall, and, whereas previous to the operation she had suffered from occasional backache and dysmenorrhœa, she was now bent over with pelvic pain, had a retarded gait, her bladder was in a state of constant irritation, she suffered from metrorrhagia and increasing dysmenorrhœa, and was, generally speaking, a picture of emaciation and distress. This, it must be admitted, is an extreme case, but, as indicated, one of a class not infrequently met with, presenting a variety of symptoms depending more or less directly upon the fixed position of the organ.

Among other post-operative sequelæ met with in some of these cases, but frequently omitted in the statistical reports of individual operators, are sinuses communicating with the fixation sutures. Within the past few years I have seen a sufficient number of cases thus complicated drift into the clinic at the Jefferson to carry the conviction that but few operators if any escape this unpleasant experience in their work. It is curious to note that, in exceptional cases, these suppurating tracts form weeks and months even after the parts have cicatrized, and a sinus once established, as is well known, proves a source of continual annoyance to both patient and physician, and rarely closes while the base of irritation—the suture—is allowed to remain.

If fixation, then, as distinguished from suspension of the organ, proves such a menace to the future health and comfort of our patients, why expose them to this risk by sutures designed to remain longer than may be necessary to obtain secure union between opposing peritoneal surfaces, which is the first step toward securing ligamentous suspension? A plan of treatment calculated to obviate the unfortunate results attending the use of buried sutures, and the value of which has been observed in a sufficient number of

cases to entitle it to further trial, is well illustrated in the treatment of the following case:

Mrs. H., aged thirty-five years, multipara, had been confined to bed since March last, owing to an aggravation of long-existing symptoms, especially backache and rectal tenesmus when in the erect posture, depending upon an enlarged retroverted uterus. Operation at the Jefferson Hospital June 18, 1896. Uterus dilated, curetted, and packed with gauze. Short abdominal incision; no adhesions. Ovaries enlarged, but not appreciably diseased. Tubes healthy. The uterus, after being raised by two fingers hooked behind the fundus, was caught at its summit with a tenaculum forceps and held in an anterior position to facilitate the introduction of sutures. A curved needle, armed with silk, was now passed through the entire thickness of the abdominal wall upon one side of the incision near its lower angle, and about a third of an inch from its margin, pierced the peritonæum and superficial muscular layer of the uterus transversely below the insertion of the tubes to the extent of about a half inch, and finally passed through the corresponding portion of the abdominal wall on the opposite side. A second suture was passed in a similar manner a half inch above the first on the abdominal surface, and correspondingly through a portion of the uterus at its summit. Two additional through-and-through sutures were required to close the abdominal opening. The tenaculum forceps was now released, and the utero-abdominal sutures tied, thus bringing the intervening areas of peritonæum covering uterus and abdominal wall into direct apposition. Complete closure of the abdomen by tying the remaining sutures finished the operation. The gauze was removed from the uterus within forty-eight hours. On the seventh day after the operation I learned that the hospital "resident" had removed all the sutures, including those fixing the uterus. Finding the organ in good position, however, I at once introduced a Smith-Hodge pessary as a means of support until a more reliable peritoneal union should obtain. To avoid undue pressure upon the body of the uterus from below, the patient was directed to evacuate the vesical contents every six hours, and special attention was given to the bowels in order to secure movements requiring the least expenditure of intra-abdominal pressure and consequent traction on the utero-sacral ligaments. She made an uninterrupted recovery, and left the hospital three weeks later. The pessary was allowed to remain *in situ* five weeks. I saw this patient

September 18th (three months after the operation), and found the uterus occupying an anterior position and freely movable. She was relieved of all her former aches and pains. In January last I performed this operation at St. Joseph's Hospital in a case not unlike the preceding as to symptoms and diagnosis. The utero-abdominal sutures were allowed to remain ten days, and a pessary introduced at the time of the operation was worn for a period of two months. A collapsed condition of the bladder and lower bowel were insisted on from the first, and maintained until peritoneal union between uterus and abdominal wall was assured. I examined this patient ten days ago (eight months after the operation), and found the uterus in a normal anterior position and freely movable.

Three additional cases might be cited giving equally satisfactory results operated on within the past four months. The value of the pessary in these cases is secondary only to that of the ventro-fixation. This instrument supports the uterus in its temporarily fixed position not by indirect pressure against the posterior face of the body of the organ, as is held by some, but by traction upon the movable cervix, pulling the latter backward and upward to a higher level in the posterior vaginal fornix, thus counteracting the tendency to retroversion and descent of the organ, and minimizing tension at the point of utero-abdominal contact.

The objection might here be urged that, while this plan of treatment may prove satisfactory in dealing with retrodisplacements without adhesions, the use of a pessary in cases complicated by extra-uterine inflammation or its results would be contra-indicated, and that fixation of the organ by temporary suture alone would not secure the end in view, owing to subsequent cicatricial contraction or coaptation and union of previously adherent structures, thus after a time re-establishing the original displacement. In this connection it should be borne in mind that, clinically, a displacement of the uterus in itself rarely constitutes disease, and that a uterus fixed posteriorly by adhesions unassociated with disease of the appendages is exceedingly rare. If, after removing that which is palpably diseased in a given case, the structural condition of the uterus justifies the operator in allowing it to remain, the probabilities are that the organ will be less likely to give rise to future annoyance by leaving it alone than by fastening it to the abdominal wall with sufficient firmness to withstand the post-operative and constantly increasing cicatricial contractions, with

the consequent disturbance of pelvic circulation, and the resultant direct and reflex nervous irritation. The future clinical aspect of these cases is rarely determined by accidental positions of the uterus.

PRELIMINARY REPORT OF A CASE OF CÆSAREAN
SECTION, SUCCESSFUL FOR MOTHER
AND CHILD.*

BY JOSEPH B. DE LEE, M. D.,

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Mrs. F. was referred to me by Dr. P. T. Burns. She was born in Indiana, and was called a "weakly child" in her first years. Learned to walk in her fourth year, and for a long time had "weak ankles," so that she had to wear braces. There has always been something the matter with the right side of her body, and she has noticed that the right hip and shoulder have been lower than the left. There is an indefinite history of some injury to the pelvis when patient was a child. This needs further investigation. Menstruation began at seventeen years, was regular and normal; she married at twenty, and is now over twenty-one years of age. The period of September 18, 1895, was normal in all respects. That of October was five days late, was small in amount, and the flow lasted only two days. The patient had believed herself pregnant in October, and this was the last "show."

Quickening was not noted, but the patient says it was about February 22, 1896. Reckoning according to the usual rule, confinement was to be expected August 1st, and it is probable that the patient became pregnant very shortly before the menstruation of October 23d.

Labor began August 1, 1896, at 2 P. M., the pains being few, the intervals long. At midnight they became stronger, and ten minutes apart. Dr. Burns, the family's physician, was sent for. The head

* Read by invitation before the Chicago Gynecological Society, September 25, 1896.

was freely movable above the inlet, and the doctor diagnosed a highly contracted pelvis. During the night the pains continued strong; in the morning the patient got some rest. At 2 P. M. the conditions were the same as they were during the night, and at five, the pains growing stronger, but no advance in the labor being perceptible, Dr. Burns invited me to see the case. Examination: Small (five feet and three quarter inches), delicately built woman. The narrowness of the hips was especially striking. Slight scoliosis in the lumbar region, convexity to the right.

Pelvic measurements: Crests, 23; spines, 21.3; bitrochanteric, 26; circumference, 79; Baudelocque, 18; conjugata diagonalis, 10; C. V., estimated 8 centimetres.

Sacrum felt from the inside is straight, but lower third projects sharply into the pelvis almost at right angles to the body of the bone. Pelvis is small, sides within easy reach of the finger; linea innominata can be felt all the way round, and there seems to be some asymmetry of the inlet; the right side is flatter than the left. The symphysis pubis is high, is displaced to the right side, and presents somewhat of a beak, which can be grasped by the fingers on either side, and is similar to that observed in osteomalacic pelves. The horizontal ramus of the pubis on the right side runs straight backward; that on the left describes the usual curve. The vulva is displaced fully an inch to the left of the median line, and looks forward and upward more than normal.

The crest of the ilium of the right side is straight; on the left the normal curve is retained.

The foetus lay occipito dextra posterior; heart tones above and to right of the navel 140 per minute, loud and strong. The head was distinctly visible and palpable as a tumor above the pubis, and, when pressed down upon the inlet, the head projected fully half an inch anterior to the symphysis. It was thus easy to put one branch of the pelvimeter on the head directly, and get the intra-uterine length of the foetus. This was twenty-six centimetres and a half, and, according to Ahlfeld, the real length of the foetus was estimated at fifty-three centimetres. The oblique diameter of the foetal head was also very easy to take, measuring eleven centimetres and a half. These results were obtained so easily and so uniformly when repeated that I felt justified in using them for the diagnosis.

The cervix was effaced, the os admitting two fingers, head balloting on the finger. Bag of waters intact.

Diagnosis.—A pelvis contracted in all its diameters. The inlet asymmetrically deformed, and of an obliquely oval, possibly somewhat triangular shape. Signs of rickets. I first thought the pelvis came under the class of generally irregularly contracted rachitic pelves, but, since the operation, the idea of a Naegelé pelvis—as the French say, “*oblique ovulaire*”—has come up. I hope to settle this by another examination.

The true conjugate was eight centimetres, but the available conjugate, owing to the irregular contraction, had to be estimated at something less than this. The child was at term (full) and larger than normal in size. It was evident that the spacial disproportion was so great that a living child could not be brought through the inlet by ordinary means. Had there been any room at the sides of the pelvis, prophylactic version and extraction might have succeeded in delivering a living child. This operation does not give good results in generally contracted pelves. There were three courses of treatment open to us:

1. Expectancy, a trial of forceps and craniotomy on the living child as a last resort.
2. Symphysiotomy.
3. Cæsarean section from the relative indication.

The pelvic deformity, the size of the child's head, decided the first. Expectancy meant craniotomy, and craniotomy should not be done on the living child if the conditions are favorable for Cæsarean section.

Symphysiotomy did not offer any better chances than Cæsarean section. A tight vagina and vulva, a necessary great spreading of the bones, especially as in this case the pelvis was obliquely contracted, the integrity of the sacro-iliac joints came seriously into question, the after-effects of such a severe disrapture of the whole osseous system, which I believe occur more often than are published, must make one cautious in selecting this as a primary operation.

It was therefore decided to propose Cæsarean section; in the event of her refusal, expectancy, forceps, craniotomy.

The points were put before the patient and her husband unvarnished, and the operation guaranteeing the life of the child accepted.

The patient was removed to Wesley Hospital, and arrived there at 11.30 P. M. Everything that was to come in contact with the patient was boiled one and a half hour, even though it had been steril-

ized before, and there were only two pairs of hands in the work—my assistant's, Dr. F. X. Walls, and my own.

Dr. I. A. Abt was to undertake the resuscitation of the child; Dr. Zimmerman, interne, gave the anæsthetic (chloroform).

Dr. Burns, Dr. Van Hook, Dr. Byrne, and Dr. Van Velsor were present.

The classical Cæsarean section was done, it being neither indicated nor desired to do a Porro operation. The vagina was thoroughly douched with one-per-cent. lysol solution, the abdomen prepared as usual for laparotomy, and an incision made in the linea alba involving the two middle quarters of a line drawn from the fundus uteri to the pubis.

The uterus was drawn out of the abdomen by the left horn, a large sponge (gauze) placed beneath it, and Dr. Walls compressed the lower uterine segment with both hands.

The uterine incision was begun in the middle of the anterior surface of the fundus, and bled so profusely as to lead to the suspicion that the placenta was situated there, so an elastic ligature was placed around the cervix. The incision in the uterus, which, however, did not touch the placenta, was enlarged with scissors to four inches, and the child quickly extracted on one foot. It was apnœic, not asphyxiated, and came around easily.

The uterus contracted tardily. The placenta, which was partly separated, was peeled off, and membranes removed complete by gentle traction. The hæmorrhage was quite profuse, coming from the placental site as well as the wound, so the uterus was freely mopped with hot sponges, and gently slapped with a hot wet towel.

Sutures were now placed—deep muscular sutures of No. 8 silk—down to the decidua, of which twelve were put in, and over this a Lembert suture of fine silk, continuous, and interrupted every inch.

Hæmorrhage now ceased completely; the peritoneal toilette was made, there being very little fluid in Douglas' *cul-de-sac* and the utero-vesical pouch.

The abdominal wound was closed in two layers—one, using silk, involving peritonæum fat and the fascia; the upper, of silkworm gut, taking in the skin, the subcutaneous fat, and in part the fascia. The first was in part continuous, the latter interrupted. Iodoform and sterilized gauze dressing. The patient was now catheterized and put to bed in good condition, pulse 108.

The subsequent course of the case was uneventful. Eighteen

hours after the operation temperature reached 100° F., but after this the highest was 99.8. The pulse was 108 after the operation, but decreased gradually, till on the twelfth day it was 46 per minute. The diet was as usual after laparotomy. It was difficult to get the bowels moving, but flatus passed freely; so there was no uneasiness in this direction. The stitches were removed on the eleventh day, primary union throughout. There was considerable odor to the lochia in the second week, for which a little iodoform emulsion was injected into the vagina. This had no effect, and, since the patient had no other symptom, the condition was treated no further.

The baby—a girl—at birth weighed seven pounds and a half, and presented the following measurements: Length, 53.5 centimetres; biparietal diameter, 10.2; bitemporal, 9; suboccipito-bregmatic, 9.8; occipito-frontal, 12; oblique, 11; occipito-mental, 13.4; bisacromial, 11; bisiliac, 9.5. Circumferences of head: occipito-frontal, 35; suboccipito-bregmatic, 33.25 centimetres. The head was hard, the sutures and fontanelles almost closed—a head that would have conformed with difficulty even to a normal pelvis.

These measurements agree remarkably with those taken while the child was *in utero*. The length of the foetus had been estimated at 53 centimetres, and the diameter of the head at 11.5 centimetres. There existed a difference of only half a centimetre in each.

The child was put to the breast immediately, and, with the exception of a little fever and diarrhoea the first few days, grew visibly, gaining almost a pound a week.

The mother and child left the hospital on the twenty-fourth day, both in excellent condition.

3318 INDIANA AVENUE.

EXTRA-UTERINE PREGNANCY.*

BY HOMER GAGE, M. D., WORCESTER, MASS.

So much of the recent literature upon this subject is occupied in advancing and defending new theories in regard to such questions as where impregnation normally takes place, what determines the

* Read before the Miller's River Medical Association, May 7, 1896.

lodgment of the ovum in the uterus or tube, the transmigration of the ovum, etc., that I think oftentimes the points of importance which have been really and finally determined, and which are of the greatest practical interest and value to us as physicians and surgeons, are lost sight of. I trust that you will pardon me therefore for bringing forward one or two matters in connection with this subject which were perhaps already sufficiently familiar to you, but which seem to me to deserve all the emphasis we can give them.

In the first place, we must regard it as settled—and it is of the greatest importance in the successful management of these cases surgically—that an extra-uterine pregnancy is probably always a tubal pregnancy. For the establishment of this fundamental principle in the pathology of ectopic gestation the profession must acknowledge its indebtedness to the brilliant work of Lawson Tait, who, in his treatise on this subject, published in 1888, said: “Whatever difference of opinion in these matters there may be, there can be but a uniform consensus of belief to this effect: that by far the greater number of cases of ectopic gestation are tubal. I believe that they are really all tubal, and in this consists the novelty of my views on the subject.” So completely has this opinion come to be accepted by subsequent investigators that we find Webster, in the full monograph which he has recently published, beginning the classification of the subject in this way: “Ectopic gestation—primarily tubal, in all cases so far as known.” Tait regarded ovarian pregnancy as possible but not proved. Webster goes even further, and believes that the ovum can develop only upon the mucous membrane of the uterus or tube; that ovarian, and all other forms of extra-uterine pregnancy, are primarily impossible. Just as the use of the terms typhlitis, perityphlitis and paratyphlitis, typhlo-enteritis, etc., have had to be abandoned in the face of the demonstration that all these conditions originate in the appendix, so the complicated and confusing classifications of extra-uterine pregnancy into tubal, ovarian, tubo-ovarian, abdominal, etc., have had to give way before the accumulated evidence of abdominal surgery, and the resulting more exact knowledge of pelvic pathology.

Not only is it established that practically all cases of extra-uterine pregnancy begin their development in the Fallopian tube, but it seems further established that an overwhelming preponderance of all cases occupy in the beginning the free part of the tube,

and that those cases which develop in that part of the tube which is included in the horn of the uterus, although occasional, are very rare.

A second point of equal importance is, that in all cases the tube must sooner or later rupture, from its overdistention by the growing ovum. Its rupture is always attended by hæmorrhage. This hæmorrhage may occur from the upper and free surface of the tube, and therefore into the general peritoneal cavity; it may occur from the fimbriated end, whence it may escape into the free abdominal cavity; or, if occurring slowly, may be shut off by adhesions between the tube, the ovary, and the broad ligament; or it may occur from that part of the tube which is included between the two layers of the broad ligament, in which case it is necessarily smaller in amount, and immediately less serious in its consequences.

In the first form, where it escapes into the free abdominal cavity, it gives rise to an intraperitoneal hæmatocele. In the second form, where it escapes into the adhesions between the ovary and tube or into the broad ligament, it gives rise to an extraperitoneal hæmatocele. The first form is almost always, if not always, fatal to the further development of the foetus. In the second form, the development of the foetus may continue, even to full term, or it may be destroyed by secondary hæmorrhages into the placenta or into the general peritoneal cavity by secondary rupture of the sac.

But the rare instances in which the development of the foetus continues, and the still rarer ones in which a living child has been successfully delivered, are altogether too few to justify us in considering for a moment the life of the child. The importance of a ruptured tubal pregnancy and its attendant hæmorrhage lies in the terrible danger to the mother. And this danger is further enhanced by the possibility—I ought rather to say probability—of a secondary rupture, even should she survive the first. Primary rupture occurs most commonly within the first three months. Tait says that he has seen no case of ruptured tubal pregnancy—that is, primary rupture—either in his own practice or in any of the museums, in which there was evidence to show that it was over the twelfth week. Parry and Webster, while agreeing that in the majority of cases rupture occurs during the first four months, state that it may take place at any time during the succeeding months of the pregnancy. In all of my own cases in which it is possible to set the time at all accurately, rupture occurred within twelve weeks.

The secondary rupture may occur at any time from a few days to several weeks, or even months, after the first.

A third point of very great practical interest in the study of these cases lies in the change which it has wrought in our views about pelvic hæmatocele. In the fifth edition of Thomas' *Diseases of Women*, published in 1880, is a list of eleven possible causes of intrapelvic hæmorrhage, and among these ectopic gestation occupies a very inconspicuous and apparently unimportant place. On the other hand, Tait states that he has never seen intraperitoneal hæmatocele that was not due to a ruptured tubal pregnancy. And very many cases of extraperitoneal hæmatocele have undoubtedly been tubal pregnancies which have ruptured between the folds of the broad ligament. Both Parry and Webster unite in recognizing it as by far the most important cause of both forms of pelvic hæmorrhage; and the latter says that "the formation of pelvic hæmatoma and hæmatocele, apart from the rupture of an ectopic gestation, has come to be regarded as a rare occurrence." It is hard for many of us to give up the old idea of menstrual blood backing up into and through the Fallopian tube, but the hard fact remains that, wherever such a hæmorrhage has been investigated, its origin has almost always been found in a ruptured extra-uterine pregnancy.

Abdominal surgery, then, has taught us that extra-uterine pregnancy stands in much the same relation to pelvic hæmatocele that appendicitis does to acute peritonitis in the male.

I have thus directed your attention, perhaps rather tediously, to these few points, that seem to me to underlie the attitude of modern surgery toward this horrible accident. In review, they are briefly: First, that all extra-uterine pregnancies are tubal pregnancies; second, that all rupture, generally within the first few weeks of the pregnancy, and that rupture is attended by hæmorrhage, which unchecked is a most fatal accident to the mother as well as to the foetus; and third, that pelvic hæmatocele is, at least in the great majority of cases, the result of such a rupture.

Permit me now to ask your attention for a moment to the clinical symptoms of extra-uterine pregnancy.

When rupture takes place, as it ordinarily does from the sixth to the tenth week, the patient may be entirely unconscious of the fact that she is pregnant at all, and, even if the suspicion of pregnancy exists, there is ordinarily no reason to suppose that the ovum is not normally situated within the uterine cavity. Our attention

is therefore rarely called to these cases before the rupture of the sac. There are, however, one or two conditions whose existence in cases of probable pregnancy ought, I think, always to be made the subject of most careful investigation. They are, first, irregular hæmorrhage, not the persistence of the catamenia, as was from the time of Petit to Parry the generally accepted sign of extra-uterine foætation, but an irregular, bloody vaginal discharge, small in amount, at times associated with clots or membranes. Such a discharge existed for one or two weeks before primary rupture in two cases that have come under my observation; and I believe that its presence, if called to the physician's attention, should always lead to a careful pelvic examination, and, if associated with tubal enlargement, the probability of an extra-uterine pregnancy should immediately suggest itself to the examiner.

Most authorities speak also of intermittent pelvic pain, in cases of supposed early pregnancy, as sometimes an indication of the extra-uterine variety. I have never met with this, nor has it been mentioned by any of my patients as having attracted their attention. However, I believe that if noted, it, as, in fact, any other indication of unusual pelvic disturbance, should be made the occasion for immediate and careful pelvic examination, with a special reference to the condition of the tubes. The fact remains, however, that in the great majority of all cases not only will the physician have no opportunity of examination, but the patient herself will have no warning until the tube ruptures, and a fatal hæmorrhage, perhaps, occurs before assistance can be summoned.

Intraperitoneal rupture is at once associated with the symptoms of shock and internal hæmorrhage; sudden, severe pain in the abdomen; faintness; collapse; weak, rapid pulse; blanched countenance, with, perhaps, dullness across the lower abdomen, with great tenderness. Death may follow within a very few hours, or may be delayed a day or two. Such an accident is, as we shall see later, almost uniformly fatal. The rupture of the sac into the broad ligament is attended by sudden severe pain, vomiting, faintness, and a lesser and more transitory condition of shock. Physical examination will disclose a fixed, immovable tumor within the pelvis. Such a tumor may entirely disappear by absorption, or the ovum may continue to develop, even to full term, when a condition of spurious labor, so called, occurs, and the child, if undelivered, dies. This represents the two extremes—immediate absorption or con-

tinued development. Instances of the latter condition are certainly rare; of the former, are probably much more common than we have been formerly aware. I think, however, that the majority of cases follow a course between these two; the ovum is not destroyed at first, but its further development gives rise to repeated hæmorrhages, perhaps still further distending the folds of the broad ligament, or even bursting through into the peritoneal cavity, and giving rise to an accident as serious as primary intraperitoneal rupture itself. If the patient escape this accident, there is still the serious danger of suppuration and septicæmia. The chance of getting a living child is too remote to be considered, even from the standpoint of the child; and the dangers of secondary rupture and suppuration are so serious to the mother that the cases of extraperitoneal, as well as intraperitoneal, rupture are more safely dealt with by surgical interference, though, of course, the same emergency seldom arises in one as in the other.

Of the prognosis in intraperitoneal rupture Goupil says: "It is but too true, I fear, that we are authorized in saying that all the cases of intraperitoneal hæmorrhage arising from extra-uterine pregnancy end in death. In fact, all the cases that I have quoted terminated in death. Generally, it has taken place in a few hours or days, and, although death has been delayed for six months, it is wholly exceptional."

Parry collected one hundred and forty-nine cases and one hundred and forty-five deaths. And Webster says that "in the majority of cases of rupture death will occur within twenty-four hours unless an operation be performed." Death occurs most commonly from direct loss of blood, though, as pointed out by Richardson, it often happens that, when the amount of blood lost is comparatively small, the peritoneal shock is in itself a sufficient cause of the fatal result. The only escape from this terrible mortality lies in a prompt surgical interference and the arrest of hæmorrhage. I believe, further, that most of the cases of extraperitoneal rupture should also be subjected to abdominal section; that the operation should be delayed in these cases only long enough to allow the patient to rally from the primary shock; and that further delay subjects her to greater danger from secondary rupture or suppuration than is involved in the operation itself.

I desire now to report seven cases to illustrate some of the points which I have tried to impress upon you.

CASE I.—M. M., aged twenty-seven years; married. Entered the Worcester City Hospital, September 23, 1891. No previous illness. Confinement with her first child in the previous July. Not very well since. Soon after the convalescence began to complain of pain in the right inguinal region, and to notice gradual distention of abdomen. Examination of the heart and lungs was negative. The urine was normal. The abdomen much distended; dull on percussion; transmitted impulse showed presence of fluid in the abdominal cavity. Her legs and ankles were slightly swollen. She remained on the medical side until October 12th, when she was transferred to my service. Operation on the 15th. Incision below the umbilicus opened into a cavity, shut off from the general peritoneal cavity by adhesions, containing six quarts of muddy fluid and two quarts of what looked like rotten sponge, but which, on examination, proved to be decomposed blood clots. The cavity was irrigated and drained, and she was discharged well on the 14th of November.

CASE II.—C. H., aged thirty years; married; an Arabian. Entered the Worcester City Hospital, September 21, 1893. She had been seen outside the hospital by Dr. W. R. Gilman, who found her in a state of shock from internal hæmorrhage, and the diagnosis of ruptured extra-uterine pregnancy was made and operation advised, but refused. During the next four weeks she had had irregular uterine hæmorrhage, with pain and steadily increasing abdominal enlargement. She had a systolic murmur at the heart's apex, transmitted into the axilla. The abdomen was symmetrically enlarged, containing fluid, and one week after her admission to the hospital there were evidences of effusion in both pleural cavities. Her pulse was very rapid and feeble, her temperature hectic, and her general condition very unfavorable. She was transferred to my service on the 8th of October. Incision revealed about a pint of very offensive muddy fluid and two pints of decomposed blood clots similar to that in Case I. Cavity was irrigated and drained, and she was discharged well on the 20th of November.

Both of these cases illustrate, I think, the natural course of extraperitoneal hæmatocele which has undergone suppuration. In the first instance the existence of an extra-uterine pregnancy may, perhaps, be doubted, although no other cause could be found to account for the hæmorrhage. In the second case there could be no question about the diagnosis; and the very unfavorable condition

of the patient at the time of operation is an example of what may follow neglected hæmatocele. Once the existence of a hæmorrhage is fully established and the sense of fluctuation definitely obtained, I can see no advantage in waiting for its possible absorption and running the risk of suppuration, with systemic infection, as in this case. Certainly, if sufficient aseptic precautions are observed, the danger of opening and washing out an hæmatocele ought to be practically nothing.

CASE III.—M. S., aged forty years; a widow. Entered Worcester City Hospital, November 3, 1890. A stout, healthy-looking German, always well and strong. Had one child, who was about twenty years old. Five or six months ago said to have been kicked in the abdomen, and soon after noticed a bunch in left inguinal region, not painful. For six weeks this has been increasing rapidly in size, and has been very tender and painful. Has been aspirated twice within the last month, and several ounces of blood withdrawn. Last catamenia four weeks ago. In the left inguinal region was a bunch as large as two fists, not adherent, smooth, flat on percussion, and somewhat movable, semi-fluctuating, and very tender. Vaginal examination showed uterus in normal position, apparently not connected with tumor. At half-past nine the next morning complained of sudden pain in the abdomen. Became semi-conscious, extremities cold, pulse very feeble. Temperature, 96.6°. Under free stimulation she rallied somewhat, and at four in the afternoon I made an incision above and parallel to Poupart's ligament. On opening the peritoneal cavity, a large amount of clotted, dark blood escaped, the examination having disclosed a smooth, round, fluctuating tumor occupying the lower part of the abdomen, in the median line. Median incision then made nearly to umbilicus, through which immediately escaped a foetus, apparently in the fourth month, followed by immense clots of blood. A ruptured sac was found connected with the uterus and tube of the left side, adherent to everything in the pelvis, and containing the placenta. Sac was freed from its adhesions. Pedicle was tied with silk and cut off. Abdomen flushed out with hot saline solution. Wound closed with drainage. On the following day hæmorrhage began from the wound so profuse as to necessitate reopening the abdomen, and its source, though difficult to find, seemed to be traced to a general oozing from the floor of the pelvis. Hæmorrhage secured by packing with iodoform gauze. Pulse, however, never fully

recovered its strength. Abdomen became much distended, and she died at three o'clock on the following day—I think of peritonitis, as well as from the result of the hæmorrhage.

This case illustrates the course of an extraperitoneal rupture, with continued development of the foetus and secondary rupture of the sac into the peritoneal cavity. I think, in the light of further experience, that under similar circumstances another time I would simply stitch the sac to the abdominal wound and pack with gauze. I believe that in that way the danger both of hæmorrhage and of infection would have been avoided. And the experience of others has certainly shown us that the sac treated in that way collapses and eventually disappears.

CASE IV.—Mrs. T., aged twenty-eight years, of Putnam, Conn. Was seen with Dr. F. A. Morrell, March 29, 1894. She had been married seven years. Had never been pregnant. Never very strong, and one year before had a cough which lasted so long as to raise the suspicion of its tubercular origin. This has, however, disappeared. Her catamenia began at fourteen years; were always regular. Eight years ago, after a severe fall, catamenia came as usual, stopped, and two or three days later she had a severe hæmorrhage. The same experience at next period. No irregularity since. Flow has been becoming more scanty. Was unwell last on the 23d of January. Some slight nausea and little pain in the breasts, and some pelvic discomfort followed. Has not felt well since. When she had passed the February period she consulted a physician, who gave her a tonic. On the 12th of March she began to flow a little, not bright red, but dark, inodorous, with some pain, and these conditions had existed until yesterday. Did not feel well all day. Toward night had a sudden, severe pain in the abdomen, relieved by subcutaneous injection of morphine. A second attack, with collapse, at four this morning, when it seemed as if she would die at once. The abdomen was painful all over. No local tenderness. Soon became much distended. Her mind was clear. She was much exsanguinated. Rallied very slightly under persistent subcutaneous injections of brandy, digitalin, nitroglycerin, and morphine. Vomiting began with the first attack, and has continued through the morning. At two o'clock in the afternoon, pulse, 126; temperature, 99.8°. Pale, bloodless, and very weak. Vomiting every few minutes. Abdomen uniformly distended, though not very tense. No localized area of resistance or tenderness. Vaginal ex-

amination showed the cervix pushed over to the left side, while to the right of it the anterior vaginal wall was bulging with a hard body, as if the body of the uterus was pressed to the right, directing cervix to the left. Nothing posteriorly. Immediate operation advised and consented to.

On opening the peritoneal cavity a large amount of blood gushed out. Uterus was found pushed to the right, enlarged to the size of six or eight weeks. Left tube enlarged and ruptured on its upper surface, and readily delivered through the wound with the ovary. It was ligated and removed. One quart of clots and fluid blood was scooped out of the abdominal cavity. Patient was in a state of collapse, but seemed to rally some after the abdomen had been filled with hot water. Wound closed with glass drainage-tube. In spite of the extreme shock, she rallied slowly, but steadily, until, on the fifth day, the glass drainage-tube not having been removed, a faecal discharge was found in the wound. This seemed to come from the point on which the glass drainage-tube rested. Intestines had been considerably distended with gas, and I think the faecal fistula was caused by the pressure of the tube. It closed spontaneously in about two weeks. Patient's recovery was otherwise uneventful. The specimen, of which I present you with a drawing (Fig. 1), was thus described by Dr. Baker, the pathologist of the Worcester City Hospital:

"The tube measures nine centimetres in length, and contains an ovoid dilatation, being two centimetres from the cut end and terminating 1.5 centimetre from the fimbriated extremity; its greatest circumference is nine centimetres. On the upper surface, at the point of greatest dilatation, is a rupture through the walls of the tube 2.5 centimetres long, through which protrudes a blood clot the size of a walnut. The cavity of the tube at the place of dilatation is lined with a thin, membranous sac completely filled with blood clot. No foetus could be found, but microscopical examination of a portion of blood clot near the peritoneal wall showed numerous characteristic villi. The ovary is of normal size, and contains a corpus luteus half an inch in diameter.

"*Diagnosis.*—Ectopic pregnancy of left Fallopian tube, with rupture."

This case illustrates the primary intraperitoneal rupture of tubal pregnancy, the severest and most dangerous of all forms. They are the most difficult cases to deal with, because the collapse seems

to contra-indicate any operative procedure until there shall have been some reaction; and yet we must recognize that the hæmorrhage is very possibly, perhaps probably, continuing. With such a condition in any more accessible part of the body, there could be

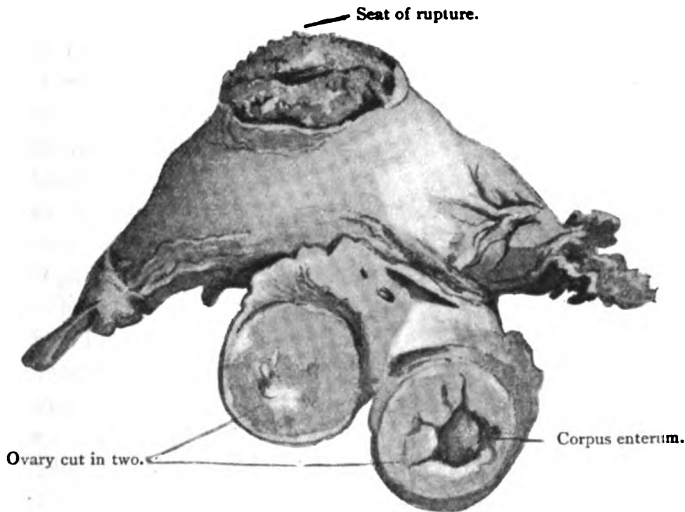


FIG. 1.

no question of the necessity for immediately securing the source of the hæmorrhage, and I fail to see why the same reasoning should not now apply to these cases of tubal rupture. Certainly some of the most brilliant results of recent abdominal surgery are to be found in just this class of cases. And although hopeless operations, which, as Dr. Richardson has said, "bring odium upon surgery and reproach, perhaps deserved, upon the surgeon," are always to be avoided (and some of these cases would seem to fall under that category), still, I think that increased familiarity with abdominal surgery and increased facility in the technique and the rapidity of operating, make it, at least in a great many of these cases, not only advisable, but imperative, to operate. In this particular case, I believe that a further delay would only have made the difficulties and dangers still greater, and perhaps have been fatal to the patient.

CASE V.—Miss H., aged twenty-eight years. Entered the Worcester City Hospital, December 12, 1895. Catamenia regular.

On December 6th was seized with sudden, severe pain in abdomen and vomiting, and since then has been confined to the bed. She had previously had slight attacks of abdominal pain, lasting for a few minutes only, and not severe enough to cause her to give up her work. The abdomen was tense, very painful, quite prominent in the center, everywhere tender, but especially so in the epigastrium. Abdominal pain and tenderness continued, with occasional vomiting, until the evening of December 21st, when the pain became very much more severe. Vomiting very considerably increased in frequency. Her face became pale and drawn, her pulse very rapid. On the 22d she was somewhat exsanguinated, pulse very rapid—110—but of better strength. Abdomen showed increased resistance and increased tenderness on the left side. Median incision made on the 23d of December, and, upon opening the peritoneal cavity, a large amount of dark blood escaped, followed by many large clots. The right Fallopian tube was found to be very much enlarged and ruptured, but not bleeding. It was tied off, pedicle cauterized, the abdominal cavity irrigated with a sterilized salt solution, and closed without drainage. Her recovery was uneventful.

“Specimen is a right Fallopian tube, which is enlarged to a diameter of 3.5 centimetres, being slightly largest at the fimbriated extremity.

“There is a complete rupture of the tube wall on its under surface at the outer part, including the fimbriated extremity, for a distance of 4.5 centimetres, and a blood clot widely separates the edges of the tube wall at the point of rupture.

“Section through the wall and membranes beneath show clearly the amnion and chorion and numerous villi, which in many places have been torn apart by blood clot. The foetus is not in the clot which filled the tube, nor was the ovary attached to the specimen removed.

“*Diagnosis.*—Ectopic pregnancy, occurring in the right Fallopian tube, with rupture and escape of foetus.”

In this instance an intraperitoneal rupture was not immediately fatal, and possibly the effused blood might have been absorbed; but, as has been stated, in view of the danger of secondary rupture or possible suppuration, the immediate operation was advised and carried out. I believe that it involves less danger than she would have been subjected to by further delay.

CASE VI.—Mrs. C., aged twenty-seven years. Referred to me by Dr. M. F. Fallon, May 21, 1894, and entered my service at St. Vincent's Hospital on the 30th. Has been married fourteen months. No children and no miscarriage. Catamenia always regular, but little pain, and no excessive flow. Last catamenia January 20th. Eight weeks later, without having had any symptom of pregnancy other than having missed her February period, was taken one Sunday afternoon with severe cramps in bowels, nausea and vomiting. Sat up Monday, but was seized again on Tuesday. From that time was in bed about four weeks; abdominal pain, tenderness, and lameness in right iliac region, nausea and vomiting. Once or twice a slight show of blood, and once a small mass as large as a filbert, which was supposed to be blood clot. Then much better for two weeks, though nausea and occasional vomiting persisted. No swelling or tenderness of breasts. At the end of two weeks pain suddenly came on again, with faintness and collapse. Friends thought she would die before the doctor could arrive. Since then pain and vomiting have gradually ceased. Had a little show, and on the 23d of May passed another little piece of clot, which, on examination by Dr. Baker, proved to contain decidual cells.

For a week past has improved very much in general appearance; tumor no larger.

Pale, somewhat emaciated; tongue lightly coated; heart and lungs normal; abdomen not distended, somewhat fuller on right side than on left; here it is somewhat tender, and, on deep palpation, presents definite tumor; hard, sharp outline, not at all movable.

Per vaginam, cervix hard, pointed, turned to the right; right side of vagina filled with hard mass; continuous, with tumor above, immovable.

Was kept quiet in bed until general condition decidedly improved, although local condition remained about the same. At the operation the omentum and intestines were found adherent to a mass in the pelvis, which, upon being separated, proved to be an amniotic sac containing foetus, and filled with blood clot partly organized. It was composed of the right Fallopian tube, very much distended, and apparently communicating with right broad ligament. This mass, including much of the broad ligament, was tied off and removed. Patient's convalescence was uninterrupted. I present also a drawing of this specimen (Fig. 2), with the pathologist's report:

" Specimen consists of an enlarged right Fallopian tube and ovary.

" The tube measures 9.5 centimetres, the whole of the removed portion being an ovoid-shaped dilatation, with a circumference of 16.5 centimetres. The tube is ruptured in a straight line on its upper surface throughout a length of four centimetres, through which

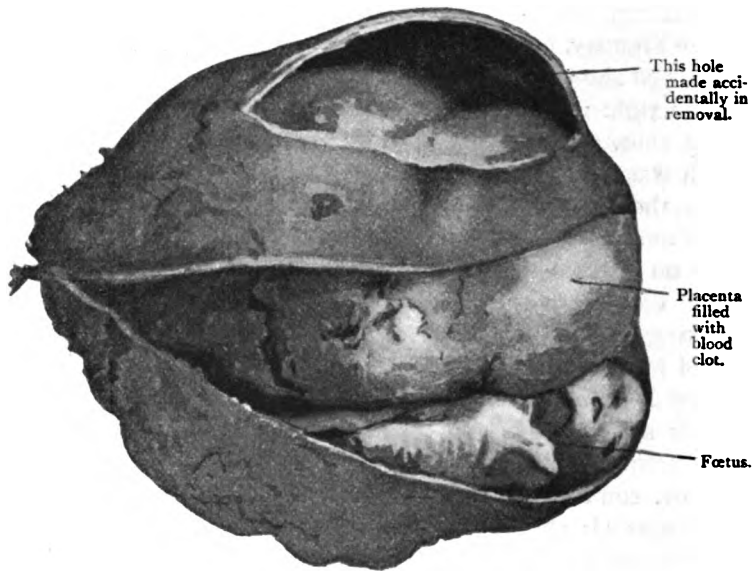


FIG. 2.

protrudes a mass of blood clot. The cavity of the tube contains a flattened foetus eleven centimetres in length, it being in first month at the time of its death, and a placenta which occupies most of the cavity on account of the hæmorrhage which has occurred in it. Apparently all of the hæmorrhage occurred into the placenta. The ovary is flattened and bound to the under surface of the tube near the uterine end, but there is no evidence of a corpus luteus.

" *Diagnosis.*—Ectopic pregnancy of right Fallopian tube, with rupture."

CASE VII.—Mrs. K., aged thirty-four years. Was seen September 9, 1895, in consultation with Drs. Burnett and Generoux, of Webster, and was removed to St. Vincent's Hospital on the following day. She was a stout, healthy German, accustomed to hard

work. No previous illness. Married seventeen years; one child sixteen years old, and one miscarriage ten years ago. Catamenia always regular, not painful; flow scanty. In May catamenia appeared only as a very slight, pinkish discharge, and during the next four weeks had pain all the time. Was up and about, but kept hot applications on abdomen. In June had the same slight, pinkish flow, and took some medicine that made her flow a little more for two or three days. Pains continued, but were not severe. Last of July she had a severe hæmorrhage, lasting one week; discharged large clots. Two days later abdomen much distended, pain more severe, and was for the greater part of the time confined to the bed.

For three weeks has had flow, with chills and very severe abdominal pain; some vomiting. A pretty constant discharge for two or three days from rectum; character undetermined.

Her temperature was 101°; pulse, 120; tongue coated, moist. Expression pinched and anxious. The abdomen was very much distended; tympanitic above; dull in lower half; distention more marked on left side, where it was exquisitely tender, and seemed hard and resistant. P. V. vaginal vault very tender; uterus crowded to front and immovable; posterior *cul-de-sac* bulging, and seemed to be fluctuating; from rectum a constant discharge of glairy, sticky fluid mixed with fæces.

Temperature was persistently high, and, upon consultation with Dr. Leonard Wheeler, a probable diagnosis of pelvic abscess from pus tube diagnosed.

Under ether, I first made puncture into the posterior *cul-de-sac* of the vagina, and obtained a little of a thick, clear, glairy fluid, much like that which escaped from the rectum. I then made a median abdominal incision, and came upon an irregular mass filling the pelvis and lower part of the abdomen, occupying all of the left side and part of the right. It was situated behind the uterus and broad ligament, lifting them well up out of the pelvis against the outer abdominal wall, and was adherent to their posterior surfaces, as well as to the intestines. It was very irregular in outline, part fluid and part solid. Around its upper border were many little thin-walled cysts containing a thin brown fluid. These were of various sizes, and their walls in many instances seemed to be made up by intestinal adhesions. The mass on the left side seemed to be composed of matted intestines, with very firm adhesions which could not be broken down. From the part of the mass in the median line and to the right I suc-

ceeded in enucleating this specimen, which had a pedicle on the right corner of the uterus, and included the right tube and ovary. In enucleating it, I opened a cavity on the left side leading down into the pelvis, and containing a large quantity of thick, green, foul-smelling pus. This was washed out and drained through the outer wound. From it, at different times, have escaped pieces of decomposed blood clot resembling those found in Cases I and II. I believe that the specimen represented a right-sided tubal pregnancy, that rupture took place about August 1st, and that the hæmatocele was subsequently infected through the intestinal walls. The abscess continued to discharge until the last of October, gradually but steadily diminishing. It finally closed completely, and she has been well ever since.

I present also a drawing of this specimen (Fig. 3), with the pathologist's report:

"Specimen consists of the right Fallopian tube and ovary.

"The length of the tube is eleven centimetres, the tube being a large, flattened mass with a circumference of 22.5 centimetres. Its

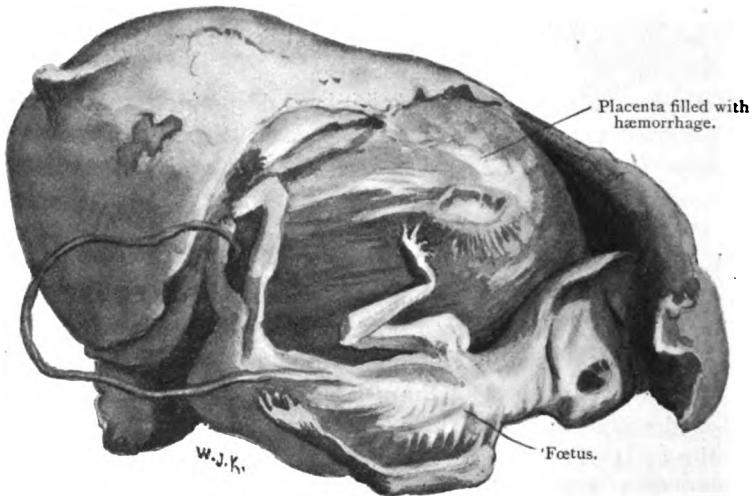


FIG. 3.

walls are friable, and ruptured in several places in removal, the point of original rupture being a stellate opening on the upper surface of the tube, near the uterine end, about three centimetres in

length. On opening the cavity of the tube, there is seen a male **fœtus** sixteen centimetres long, about three months old at time of **death**, with an enormously enlarged placenta from hæmorrhage **into it.** Section of the tube wall showed a thickening everywhere, **except** at the point of rupture, where it was greatly thinned. The **ovary** is greatly flattened, and does not show any corpus luteus.

"Diagnosis.—Ectopic pregnancy of right Fallopian tube, with rupture."

In both of these cases rupture had taken place primarily into the **broad ligament**; in No. 6 there was a history of secondary rupture **six** weeks after the first, but, as no blood was found in the **peritoneal** cavity, there is, I think, every reason to suppose that it was **due to** secondary hæmorrhage into the broad ligament, and not to **an intraperitoneal** rupture. In No. 7 the tube ruptured into the **broad ligament** without destroying the life of the fœtus; a secondary rupture into the peritoneal cavity destroyed the life of the child, and **gave rise** to the large hæmatocoele which had been converted into an **abscess.** Both illustrate the probability of secondary rupture, the **dangers** that are likely to complicate it, and the chance of being **obliged** ultimately to interfere. I think such interference should **come** more properly in anticipation of such complications as soon as **the** presence of a tubal pregnancy, ruptured or unruptured, has **been** recognized.

MATERNAL STERILITY.*

BY G. BETTON MASSEY, M. D., PHILADELPHIA.

Aside from congenital deficiencies and anomalies of development of the essential organs of generation, we have been taught since the days of Marion Sims that the chief reason for sterility attributable to the woman is narrowness of flexion of the uterine **canal.** When it is remembered that the narrowest pinhole os will admit a sound on careful manipulation which is many times larger than the self-propelling spermatozoid, it would seem that this reasoning is inconclusive. It is doubtless to the operative furore that

* Read before the Philadelphia Obstetrical Society, September 3, 1896.

the popularity of the stenosis and atresia theory of sterility is due, for since the days of Sims and J. Y. Simpson practically no form of treatment has been employed except some method of enlargement of the canal. This was at first accomplished by slitting the cervix—producing artificially, in other words, the same lesion for the sewing up of which other costly operations were later devised. Owing to the combined ineffectiveness, morbidity, and mortality of this procedure, it has of late been superseded by so-called dilatation, which is accomplished only by tearing apart the muscular and fibrous tissues that encircle the canal by powerful steel instruments. Only exceptionally has this accomplished a cure of the sterility, while it is at times followed by serious consequences in the shape of parametritis and diseased appendages. One case of ectopic pregnancy and a number of instances of uterine and ovarian tenderness have been observed by me after dilatation for this purpose in patients who were free from tenderness previously.

Far more important causes of sterility may be found in imperfect participation of the uterus in the sexual orgasm, catarrhal changes in the mucus of the uterus and tubes, and inactive ovaries, the two last being the most important. A lessened aspiratory action of the uterus, while rendering conception less certain, can not be a serious impediment on account of the automobility powers of the spermatozooids. This defect may, however, be materially lessened by the general intrapelvic action of electricity, promoting the nerve tone of the organs, particularly of the uterus and ovaries, increasing muscular activity, and quickening circulation. The method best adapted to accomplish this purpose is the vagino-abdominal galvanic application with covered vaginal electrode, which should be negative, a current of thirty to forty milliamperes being turned on and off gradually and repeatedly by the swelling method. This may be supplemented with labile lumbar applications of the galvanic current to the sexual center of the cord, the patient lying upon the face with a large pad under the abdomen.

Of the toxic effect of altered uterine secretions on the fertilizing cells of the semen there can be no question, and it is in these cases that galvanic electricity applied within the cavity of the uterus is of the greatest service by its alterative action on the secreting surface. Unless the intra-uterine treatment is indicated also by marked changes in the mucous membrane, the covered elastic electrode is best as promoting favorable changes in the mucous mem-

brane with least traumatism. It has been my habit to employ the positive pole usually, though the choice of pole for this purpose is open to further investigation to determine whether the normal alkalinity of the uterine mucus should be increased by the negative pole or diminished by the positive pole. Possibly neither effect is important, the results depending rather on the simple excitation of a more normal secretion.

Deficient activity of the ovaries can only be inferred as a cause of sterility in the absence of any demonstrable lesion or more patent defect of functionation on the part of the woman, and of course after the question of the possible sterility of the husband has been eliminated. It may or may not be associated with lack of sexual appetite and responsiveness, for many women conceive readily in whom the orgasm is deficient or absent. Any method of treatment that promotes increased activity of the pelvic circulation, such as negative vagino-abdominal applications of either current, may increase ovulation, while the musculo-tonic effect of the galvanic current by the swelling method may do much to lessen a practical maternal impotence from weakened musculature, which is only less disastrous to the conjugal relation than similar conditions of the male.

But few instances of this affection have been placed under my care for the purpose of curing the sterility—but five in all—in four of which the treatment outlined was successful at some time during a year following the cessation of the treatment, two instances being almost immediate. In the one case that was a failure up to the date of her last report to me the ovaries were both prolapsed, and the tubes also probably involved in the remnants of an old pelvic inflammation. Her symptomatic condition was nevertheless improved.

The slight attention paid to this subject is doubtless due in part to a lack of information as to the value of this method in certain cases and in part to a prevalent disinclination of American women for the burdens of maternity. That electricity may cure sterility when the patient only seeks relief from the pain of chronic metritis is abundantly shown by a tabulated report made by the writer to the American Electro-therapeutic Association in 1894,* where, of thirty-two cases of uterine disease that involved in each instance

* *Trans. Amer. Electro-ther. Assoc.*, 1894, p. 78.

at least a temporary or acquired sterility, eight had become pregnant after the treatment, when my report was made. In a paper by Apostoli, at the same meeting, as many as eighty of his cases were reported by him as having become pregnant after intra-uterine electric treatment, some of them having conceived shortly after one application. Apostoli does not mention how many of his cases were nulliparous after some years of marriage, and therefore sterile; but, of the twenty-two cases reported *in extenso* in the paper,* five were nulliparæ.

An interesting case of this sort was sent to me in August, 1892, by Dr. Whitcomb, of Greenwich, N. Y. She was a lady of twenty-nine years of age, who had been married five years without the least signs of pregnancy, but who came to me for a hæmorrhagic menorrhagia, which she had suffered from both before and since marriage. The only perceptibly abnormal conditions were a slight leucorrhœa and an enlarged corpus uteri, the cavity being three inches in depth. Under positive intra-uterine applications she improved rapidly, the applications finally being made but once a month. About this time I was surprised by what appeared to be a very painful period, accompanied by clots, and counseled a waiting policy for some months to determine what her condition would be without treatment. At her next visit, some two and a half months later, she stated that the following period had been painless and normal, but that she had seen nothing since then. An examination gave rise to a strong presumption of pregnancy then existing, and convinced me that the painful period of some months back had been a miscarriage, inadvertently brought on by the treatment preceding it. She was sent home this time without the treatment, and in due time gave birth to an unexpected but much-desired daughter.

* *Trans. Amer. Electro-ther. Assoc.*, 1894, p. 371.

THE SYMPTOMS AND DIAGNOSIS OF SALPINGITIS.*

BY L. GRANT BALDWIN, M. D.,

Gynæcologist to St. Peter's Hospital.

The important position of the Fallopian tube and its inflammations in the practice of diseases of women, together with the very meager literature on the subject, especially in the text-books of ten years ago, as to the symptoms and diagnosis, is my reason for asking you to hurriedly review them this evening.

It will be admitted without question, I think, that the diagnosis of all inflammatory conditions of the pelvic organs is beset by many difficulties, and constantly is this true of inflammation of the tube in the early stages.

I am positive that many cases of inflammation of one or both tubes go on to suppuration without any symptoms of sufficient gravity to cause a phlegmatic female to seek the advice of a physician, so that our observations are often confined to the post-suppuration period.

In a typical case the patient will tell of a stopped or suppressed menstruation from taking cold, wet feet, or from some other exposure; this in from twelve to forty-eight hours is followed by more or less severe colicky pains in one or both sides—more frequently in the left—often with nausea and vomiting, but with little pain on pressure over the abdomen. Accompanying these will be a temperature from 99.5° to 101° , seldom higher, and the pulse not above a hundred. As a rule, these symptoms are not severe enough to put the patient to bed, and in a day or two have all subsided, and she thinks that she has recovered; but in a short time the symptoms recur, coming on suddenly, and are usually more severe in every way, and with the advent of the next menstrual period the patient decides she has more than "taken cold," and sends for her doctor. It is impossible, of course, to say just how long in a typical case it will be before pus forms; but I believe a catarrhal inflammation may exist for months, or even years, or, in other words, until such

* Read before the Brooklyn Gynæcological Society, June 5, 1896.

time as the uterine end of the tube becomes occluded, which it does in all cases that are not cured by treatment, or in which the inflammatory process is not arrested by Nature, even if forced to dilate again by an accumulation of fluid beyond the constriction.

When pus forms and dilates the tube, it usually, if not always, begins near the fimbriated end, due to the constriction or closure, together with the inflammatory thickening near the uterus, all of which are favored by the anatomy of the tube at this point, with which you are all familiar.

Now, the tube, from stretching of its muscular wall, contracts, and enough pus is expelled into the peritoneal cavity to relieve the tension. Distinct symptoms of peritoneal involvement occur, and for a few days the patient is confined to bed, and, as a rule, treated for pelvic peritonitis. The fimbriated extremity of the tube becomes glued to some convenient spot on the broad ligament or Douglas' pouch, it may be securely enough, so that no more pus can find vent in that direction, or it may take several attacks to accomplish this.

Now we have the conditions favorable for the development of a cystic suppurative salpingitis or a pyosalpinx. This condition may and often does exist without the advice of a doctor having been sought, many women thinking that they had been having frequent attacks of colic. Usually, but not constantly, there will have been dysmenorrhœa.

This condition may go on for some time, and give absolutely no symptoms, no fever, and no increase of the pulse rate, and yet there be a collection of pus in each tube. The following case is not an unusual one: Mrs. A., aged thirty-one, married three years, sterile, well developed, and nourished, had always been well except a rather slight dysmenorrhœa, but had never been confined to bed; first seen by me January 23, 1896, at which time she had been ill since New Year's day, and in bed for one week with violent colicky pains in the lower abdomen, accompanied with a slight flow; pulse and temperature were both normal. The physical signs were so positive that a diagnosis of double pyosalpinx was readily made. Two days later I removed this pair of tubes, which almost filled a pint jar (Fig. 1). The adhesions were extensive, and both old and recent. Absence of increased temperature and pulse rate in the presence of so much pus may be emphasized, for the point not infrequently comes up when called in consultation, the facts being contrary to the opinion ordinarily held by the general practitioner.

The symptoms of rupture of a pus tube are well marked and definite.

Usually while at work or during coition there is a sudden labor-like pain in one or other iliac region, the first usually not lasting but



FIG. 1.



FIG. 2.



FIG. 3.



FIG. 4.

a few seconds, but to be soon followed by repeated attacks. There may or may not be symptoms of shock, due to the invasion of the peritoneal cavity by the tube contents. The pain becomes more

general and not as severe; there is a moderate elevation of pulse and temperature, with some tympanites, nausea, and vomiting.

The subsequent history will depend to a great extent on the character of the escaped pus, but a peritoneal inflammation is sure to follow; a walled-off abscess, a localized involvement, or a general septic peritonitis may result. And now in many cases the advice of a physician is sought for the first time.

The diagnosis of salpingitis in its various stages is important, and upon its early recognition depends not only the sexual life of the victim—for, as a rule, she is a victim—but her existence, in fact.

Physical examination is unsatisfactory, although never to be omitted. Before the tube becomes bound down and surrounded by adhesions it is not easily felt, except in very thin subjects, so that we will be forced to depend largely on the subjective symptoms in the early stages. A little later a feeling of more or less resistance can be made out on one or both sides, with some fixation of the uterus, and possibly the tubes can be outlined by bimanual manipulation.

Practically there is but one condition likely to be confounded with pyosalpinx at the time of rupture, and that is ruptured tubal pregnancy. These two conditions, from many points in the history and the character of the attacks, are difficult, and many times impossible to differentiate.

The following case will illustrate: Mrs. P., aged twenty-four years, married, and the mother of one child three years old, sent to my service at St. Peter's Hospital, September 25, 1895. Had been ill four days. Did not menstruate in July or August, and considered herself pregnant; never skipped a period before except when pregnant; four days previous to admission, while at her housework, was taken with a severe agonizing pain in right side, followed by a show of blood. She was obliged to go to bed, but was up the next day, only to be prostrated again, with pain becoming more general and constant. Physical examination revealed indefinite mass to the right and posterior to the uterus. Abdominal section the next day revealed a ruptured pus tube, with circumscribed peritonitis and an unruptured pyosalpinx in the left. What better clinical picture could we have had of tubal gestation?

A skipped menstrual period with a history of more or less gastric disturbances, indefinite abdominal pains, with a sudden severe

crampy pain, accompanied by a bloody discharge from the vagina, are almost constant in each condition.

Perhaps in a given number of cases of pyosalpinx there will be fewer interruptions in the menstrual function, and the blood at time of rupture will be more watery—not the thick tarry discharge—than in an equal number of tubal pregnancies.

But the treatment will usually be the same, so that a positive diagnosis is not as important as in the earlier stages.

Appendicitis, when the attack occurs on the right side, may confuse, but a careful examination will usually differentiate, unless the two conditions coexist.

Hydrosalpinx and ovarian abscesses are perhaps conditions next most likely to confuse; hydrosalpinx is rare, and ovarian abscesses attain a much larger size without rupture, and give a different impression to the examining finger.

Intestinal colic, dysmenorrhœa due to other causes, renal and ureteral colic, will all be excluded by the clinical history and treatment. An acute ovaritis without accompanying involvement of the tubes is rare, but may exist; the pain will be more constant in character with less constitutional disturbances.

It is the general opinion among the profession, I believe, that pus tubes spontaneously discharge through the uterus, a cure resulting; and, in case they do not empty themselves, that they may be drained by dilating and curetting the uterus. That this belief is shared by men into whose hands cases fall for special treatment is proved by published articles on this subject.

I wish to place myself on record as saying that I do not believe that a pyosalpinx ever discharged through the uterine end of the tube into the uterus either spontaneously or as a result of dilatation and curetting of the uterus. My reasons for this are twofold: First, the normal size of the lumen of the tube at the isthmus, together with the large amount of muscular tissue it contains at that point, rendering during pathological conditions narrowing, if not complete occlusion, almost certain as a result of the preceding inflammatory process; and, secondly, careful observation of a large number of removed specimens, a few of which I show you.

I have a record of forty-one specimens, all of which were carefully examined in reference to this point, and not one was found through whose uterine end could pus be squeezed without considerable force being applied. In many cases there was an inch or

more of tube through which pus could not be forced with any amount of pressure. This condition is well shown by these specimens (Figs. 2 and 3).

28 SCHERMERHORN STREET.

THE EXTRAPERITONEAL TREATMENT OF THE STUMP IN ABDOMINAL HYSTERECTOMY FOR UTERINE MYOMATA.

BY BYRON ROBINSON, B. S., M. D.,

Professor of Gynecology in the Post-Graduate School, Chicago.

Any method which is safe, avoids prolonged shock, and is accompanied with good results should be welcomed in the removal of large uterine myomata. For ten years I have watched with interest the best-known gynecological operators in the various methods of removing uterine myomata. We have practiced about all the methods in vogue. But in the removal of large uterine myomata with debilitated patients shock is generally profound. Such patients nearly all possess deficient heart or deficient kidney action, the very organs of most vital importance. Some six months ago Dr. N. Senn invited me to witness a method which he had devised to remove a uterine myomata, producing an extraperitoneal stump. In June and July Dr. Lucy Waite and I tried the method on two large myomatous tumors with such gratifying success that I am induced to report the results.

Mrs. A., from Wisconsin, a physician's sister, came to us for the removal of a large uterine myoma. A long median incision was made to allow the tumor to be brought out of the wound. Now with catgut, beginning at the angle of the wound above the umbilicus, the peritonæum was closed down to the posterior surface of the uterus. We then ligated with catgut the ovarian arteries at the fimbriated ends of the Fallopian tube, and a large clamp was placed on the broad ligaments on each side of the uterus as far down as we wished to begin to make the peritoneal cuff. We then split the broad ligament down to the uterine arteries, and ligated them with catgut. The peritoneal cuff is now stripped down, mak-

ing as ample a cuff as possible. The uterus is amputated just above the internal os. No bleeding follows, only oozing, as we have ligated both ovarian and uterine arteries. We now suture the upper edge of the peritoneal cuff to the parietal peritoneal edge, which was produced by the median incision, and the peritonæum is entirely closed. We can close the peritonæum immediately after making the cuff if desired, in which case the shock is simply similar to an exploratory laparotomy. The stump is drawn up in the wound and fixed there. The external layers of the abdominal wall, muscles, fascia, and skin are then closed by silkworm-gut suture. The two sutures in the wound over the extraperitoneal stump are allowed to remain untied for thirty-six to forty-eight hours to allow the escape of primary wound secretion. The patient made a recovery with little pain or discomfort.

Dr. Simmons, of Tomah, Wis., called us to operate in his hospital on Mrs. B., who had had a large uterine myoma for years. Dr. Lucy Waite and I, with Dr. Simmons' assistance, performed the extraperitoneal method, as in the case of Mrs. A. The patient made an excellent recovery. In both of these cases we drew the ligated ovarian arteries with the ligatures into the wound with the extraperitoneal stump. This procedure left no ligature in the abdominal cavity; all were extraperitoneal.

The advantages of the extraperitoneal treatment of the stump in abdominal hysterectomy for uterine myomata are substantial and valuable.

1. The method of immediate closure of the peritoneal cavity as soon as the tumor is rolled out avoids shock to a wonderful degree. In our last two cases we finished the operation of removing large uterine myomata with a pulse of 85 to 90.

2. After drawing out the tumor and closing the peritoneal cavity with the posterior peritoneal cuff, one can proceed as leisurely as the case demands, for in reality the abdomen is closed.

3. The hæmorrhage which might follow could be arrested without endangering the peritoneal cavity.

4. We can do the operation without leaving a single arterial ligature in the peritoneal cavity. I had often previously made large cuffs in uterine myoma and ligated the uterine arteries extraperitoneally, splitting the broad ligaments, and also put Kleeburg's elastic ligature around the uterine stump, stripped of its peritonæum, and sewed the peritonæum to the abdominal wall to close the peri-

toneal cavity, but I had never followed a distinct plan of immediately closing the peritoneal cavity as soon as the tumor was rolled out, until suggested by Professor Senn.

5. The pelvic floor is not weakened by removal of the cervix.

6. Very weak patients will be able to bear this operation, as the shock is remarkably slight. In making the posterior flap or cuff one must be careful not to cut below the peritonæum, or some troublesome hæmorrhages may arise.

TWO CASES OF PAROTIDITIS FOLLOWING CÆLIOTOMY.*

BY WILMER KRUSEN, M. D.

First Case: Non-suppurative Parotiditis.

L. O., aged seventeen years, an Italian, admitted to the Jefferson College Hospital, October 11, 1893.

Diagnosis.—Retroversion of uterus with inflammatory adhesions and hypertrophied cervix. The patient was operated on October 16th by Dr. Montgomery, the cervix amputated by Schröder's method, the abdomen opened and both appendages removed, and the uterus sutured to the anterior abdominal wall.

On the second day after the operation a marked swelling of the right parotid gland was noticed, with localized heat and marked tenderness. At first cold lead water and laudanum was applied; later, simply the ice-bag, and the symptoms and signs gradually disappeared. No evidence of suppuration, either locally or constitutionally, was present, and her subsequent recovery was uneventful.

Second Case: Suppurative Parotiditis.

A. S., aged thirty-two years, was admitted to Jefferson Hospital on January 3, 1896.

Diagnosis.—Uterine fibroid and ovarian cyst. Operation on January 7th by Dr. Montgomery performing supravaginal hyster-

* Read before the Philadelphia Obstetrical Society, October 1, 1896.

ectomy and removing the cyst. On January 11th, the fourth day after the operation, the patient developed a parotiditis, the gland being markedly swollen, swelling extending forward to the cheek, upward beyond the zygoma, downward and backward to the neck; it was tense, hot, and very painful. After about four days the swelling subsided, only to reappear on the 24th inst., seventeen days after the operation. Four days later the most prominent portion of the gland was incised, and about four drachms of pus evacuated. After this the swelling gradually abated, and the patient was discharged on February 19, 1896. An examination of the pus made by Dr. D. Braden Kyle showed the presence of *Streptococcus pyogenes*.

The occurrence of parotiditis after cœliotomy is one of the more infrequent sequelæ, and, according to Pozzi, has always been considered as evidence of a certain degree of septicæmia. In fact, it was formerly the cause of a grave prognosis.

In the first case reported one would suppose that change in the parotid gland depended simply on the inexplicable sympathetic connection between the ovary and parotid gland (which seems closely allied to the sympathy existing between the uterus and the thyroid gland). The normal temperature and absence of other evidences of suppuration, and the rapid subsidence of other symptoms, argues against the septic process. In the second case the development of the parotiditis, followed by the total disappearance of the swelling, and ten days later the occurrence of a secondary parotiditis suppurative in character, is unusual. An interesting fact in regard to these two cases is that they were both foreigners, one an Italian, the other a German, neither one being able to communicate with nurses or attendants in English. In the second case, acute mania was also a complication. In neither case did an examination reveal any complication within the pelvis. From these cases we may infer that there is a sympathetic parotiditis following operations or injuries to the abdominal or pelvic viscera, which is simply and purely reflex, while another class of cases is probably septic in character, and attended by suppuration in the gland. Cases have been reported of parotiditis following not only abdominal operations, but also operations for perineorrhaphy and hæmorrhoids.

In the wide experience of Goodell he records but three cases, and he considers them not due to a mere coincidence, but caused by a reflex sympathy between the ovaries and these glands. What

has been termed parotid bubo may occur after ovariectomy, usually associated with general septicæmia. Ross, of Toronto, in a paper before the American Association of Obstetricians and Gynæcologists, reports a case of suppurative bilateral parotiditis developed on the tenth day after operation, and the case terminated fatally on the forty-sixth day. Prior to death paralysis of the left side of the face and drooping of the left eyelid were noticed.

Paget has collected one hundred and one cases of parotiditis following injury to the abdominal or pelvic organs, and due not to pyæmia, but to reflex nervous action. Fifty of these were due to slight injuries, as a blow or the introduction of a pessary. It may occur during pregnancy. In seventy-eight of these cases, forty-five of them were suppurative and thirty-three resolved without suppuration. Symptomatic parotiditis may occur in typhoid fever, pneumonia, scarlet fever, and other medical diseases. In some of these cases the inflammation extended from the mouth to the parotid gland, and argues in favor of cleanliness of the mouth and attention to the teeth and tonsils. The treatment is carried out on ordinary surgical principles.

A PLEA FOR ABDOMINAL HYSTERECTOMY.

BY HUGH T. NELSON, M. D.,

Instructor of Clinical Surgery, University of Virginia; Member of Southern Surgical and Gynæcological Association; Member National Association Railway Surgeons;
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Examining Board of Virginia.

Hysterectomy has for some years past been recognized, among European as well as American surgeons, to be a thoroughly legitimate operation for the many conditions characterized by intrapelvic disease; and it is true that not only are troubles distinctly referable to the female genito-urinary apparatus *cured* by this procedure, but many others, proved by the results to have been reflex, are permanently relieved. This operation has become so common in the larger cities of our Union that even the youngest and most inexperienced graduates, as well as older physicians, are running to riot in their endeavors to find females upon whom to work this—in their hands—most formidable surgical experiment.

This mania—the which it would really seem to be—has become contagious, or rather infectious, and, aided by the ill-wind popular fancy, has contaminated the reason of many hitherto level-headed physicians. The small cities and towns have each votaries of this gynæcological deity, whose shrine they worship as sacredly and defend as ardently as that of the kindred god—*appendicectomy*. In the hands of competent surgeons many a suffering woman is brought to complete restoration to health by the operation under consideration; but who, be he doctor or layman, can ever tell how vast the number of unfortunates who either lose their lives as a resultant of the surgeon's knife or, which is worse, linger out a miserable existence of suffering in no whit abated by the operative treatment undergone? Statistics do not—in fact, can not—give the equation between those operated on and those presenting themselves for operation. Many die from shock as the immediate result of surgical interference; others from the various intrapelvic and intra-abdominal conditions arising secondarily; while still a third class actually wither away from nervous conditions or impaired vitality. These last are to be enumerated in the *post-hoc*, if not the *propter-hoc*, category, though it may be only after a number of years, dragging out infinite lengths of invalidism, that they gain what to them has become a release.

With all this to be considered, there are occasions *demanding* the operation of hysterectomy, and the risk of its performance must be frequently undertaken by surgeons of little special experience and no desire for such work. The removal of the uterine appendages is, comparatively speaking, a simple operation, but the question at once presents itself as to the advisability of leaving the uterus, when it has no further function in woman's economy, to become a possible, if not probable, source of further trouble. Nor does the question, often presented by the opponents of such radical measures, "Why not remove the uterus and its appendages of all women after the establishment of the menopause?" meet the issue. Uterine atrophy is not to the extent many would lead us to believe, and a parous uterus has not infrequently been the cause of trouble years after its functional activity had ceased. We to-day witnessed the removal of a large cystic ovarian tumor in a multiparous woman of fifty-two years, who for eight years had not menstruated; also have ourselves removed one of greater growth in a nulliparous woman of sixty-two years. These instances may not be germane to the sub-

ject, but are cited to demonstrate that, long after functional activity ceases, vicious developments may proceed in portions of the genito-urinary apparatus. The question of the expediency of the removal of the uterus in all cases demanding complete ablation of the appendages must remain *sub judice* with the profession at large, though some of our most eminent specialists follow this plan as a routine, regarding this procedure, from the standpoint of safety to their patients, as absolutely advisable. More seriously is the question of the *complete operation* to be considered when one reflects that in the majority of cases the diseased condition of the appendages is the direct result of a diseased uterus, and it is hardly rational to suppose that under such circumstances one can ever leave behind a perfectly healthy organ. But the main point at issue—let the proposed operation be complete or incomplete—is by what route the offending organs shall be approached and removed.

Three methods of operation are practiced—abdominal, vaginal, and vagino-abdominal—the latter method being entitled to a position in the classification only because of its systematic practice by some operators who do not attempt either of the others independently. In vagino-abdominal hysterectomy is not to be included those cases where the operating surgeon, by reason of difficulties, finds himself forced to abandon the proposed route and resort to the combined.

Abdominal hysterectomy is the method pursued by most of those undertaking the operation, and unquestionably offers the best route for surgeons not exceptionally skilled in manipulation of the pelvic contents. By this method, with the aid of the Trendelenburg position, the surgeon is enabled to perform the entire operation under the guidance of his eye; hence this method can never be other than the one most generally employed. Adhesions of the abdominal viscera to the pelvic contents are plainly brought into view and separated, and, should the lumen of the bowel be invaded during the freeing of the parts to be removed, such lacerations can be repaired without danger of infecting the abdominal cavity by the contents of the bowel.

A recent operation, as done by an eminent New York surgeon through the abdomen, revealed a suppurating ovary adherent to a colon which was gangrenous for about three inches of its entire circumference. The abscess had previously discharged through the rectum; yet the removal of uterus and appendages was done in a

masterly manner, and the gangrenous intestine treated through the same incision. The patient survived the shock of operation, and at last accounts was doing well. This operation in the hands of a less skilled surgeon or undertaken by any other route could not have been performed with safety, and would undoubtedly have terminated disastrously. The statement that the "shock" which follows the abdominal operation is greater than that which follows the vaginal is by many much exaggerated. Although the manipulation of the abdominal viscera is always attended by some depression of the vital forces, yet the absolutism with which hæmorrhage can be controlled more than compensates for the too frequent profuse blood flow during a vaginal operation, *even* when done by experienced surgeons. Another plea in favor of the abdominal operation is that the most skilled surgeons who, feeling sure of correct diagnosis, have decided to operate vaginally, are frequently forced to abandon this method after prolonged effort to accomplish the desired result. Of course the extra time taken makes the prognosis less favorable to the patient, and her condition is aggravated by increased traumatism. The pain incident to the vaginal operation for removal of the uterus and appendages is infinitely greater than that following the abdominal operation; and, since it is deemed undesirable in a great degree to relieve this pain by anodynes, the after-effects of the operation in keeping the patient disturbed for so many hours should, when possible, be taken into consideration.

Again, in vaginal hysterectomy, where of necessity the opened vaginal vault is packed for purposes of drainage, as well as to prevent the descent of portions of the abdominal contents, the plastic exudate thrown out upon the surface of the packing makes a mass of cicatricial tissue in which portions of the bowel are necessarily involved. In other words, vaginal hysterectomy has a pathological consequence unavoidable in nearly all, if not all cases. A certain amount of intestinal adhesion will take place, with the probability of becoming in the future a source of great trouble to the patient.

There is, however, one condition, according to many surgeons, which absolutely demands that hysterectomy be done by the vaginal route and no other. Carcinomatous conditions of the cervix uteri and other malignant destructive lesions (whether of body or cervix) should never, it is claimed, be removed through abdominal incision, even though vaginal enlargement by appropriate cutting be resorted to in order to gain room for satisfactory work.

But, again, some operators, who ordinarily prefer the vaginal route, claim, and with excellent reason, that uteri affected with malignant disease should only be removed through the abdomen, their chief ground being that under the operator's eye all the diseased structure can be cleanly taken away by working in a bloodless field.

What greater advantages, then, can be urged for the vaginal route when compared with the abdominal? The answer is short. When working by the abdominal route the strength of the abdominal wall is lessened, and a predisposition to hernia thus acquired.

In view of the above facts, and that hysterectomy and ovariectomy have frequently to be performed by novices in the gynecological field, as well as of the serious difficulties arising in performing ablation of the intrapelvic organs by the vagina, it has become expedient (except in the hands of the select few) to invariably operate by the abdominal route. Should the method of treating the stump, so beautifully illustrated by Dr. Howard A. Kelly at a recent session of the Southern Surgical and Gynecological Society in Washington, be adopted, the vagina should not be attacked during the operation. But if it be decided to leave no portion of the uterine neck, the primary step of the operation should be the circumscribing by the cautery knife of the cervix through the vagina. It can not be otherwise than appropriate to give in this connection, for the benefit of the possibly ignorant, a detailed outline of such an abdominal hysterectomy as is deemed by the writer most simple and effectual.

The preparation of the patient—a matter of routine, it is true—should be carried out with the utmost care, both as regards her external and internal economy. In the former, bathing, scrubbing, and thorough shaving, followed by ample aseptic dressing; in the latter, free saline purgation on the evening previous to operation, followed by an occasional teaspoonful of beef tea as sole nourishment. Should she be of a nervous temperament, and evince utter sleeplessness on that night, a drachm of potassium bromide, diluted in four ounces of tepid water, may be given by rectum, and, if indispensable, a hypodermic of morphine, one eighth to one sixth of a grain in strength, may be given in conjunction with the above sedative enema. In venturing this advice the writer is fully aware that he opposes principles of sound abdominal surgery, and yet there can be no doubt that the judicious use of anodynes as he sug-

gests diminishes *shock* during operation, and renders the patient more susceptible to anæsthetic influence—advantages which more than counterbalance any tendency to intestinal torpor and lymphatic inaction which may be produced by the anodynes.

The instruments necessary are all of simpler sort and comparatively few in number. A short-bladed scalpel, half a dozen Péan's artery forceps (for use *before* opening the peritonæum), one pair of stout, broad-bladed retractors, half a dozen stout hysterectomy forceps (for use *after* the cavity is opened), a stout pair of long-handled scissors curved on the flat, two long-handled dressing forceps for sponging, a long-handled ligature passer, or blunt-pointed pedicle needle, short curved needles of stout construction, as well as straight needles of several lengths, and a good needle-holder, are all that are required to do this most delicate and complex operation. The ligature passer and needle-holder may be dispensed with by substituting for them a curved needle and ordinary artery forceps. Several gallons of sterilized normal salt solution of unvarying temperature of 110° F. should be available, as well as the following essential accessories: Ligature material in the form of silk, silkworm gut and catgut, pads for holding the viscera out of the field of work, composed of six thicknesses of gauze six by eight inches, and other smaller pads of like construction, to be used as sponges. All being in readiness, the patient, previously anæsthetized and comfortably wrapped in protecting material, is brought in and placed on the operating table, either at full length or with the legs pendant from the foot of the table. The pre-operative dressing being removed, the cutaneous surface and vagina are thoroughly washed, scrubbed, and douched with antiseptic solution of ordinary strength, and, as a final preventive measure, the field is douched with hot normal salt solution, thus washing away any remains of chemical agents which might enter the abdominal cavity and irritate its contents. The operator now takes his stand on the right side of the patient, his chief assistant immediately opposite; the other assistants—one or two—in places most convenient for the operator and his chief assistant. Two female nurses and an orderly should also be on hand. If the operator handle his own instruments, one assistant may be dispensed with, or one of the nurses may be used for this purpose.

The operator makes an incision at the middle line, through the skin, subcutaneous fascia, and fat, down to the white line between

the recti muscles, beginning at a point one inch below the umbilicus and extending to within one inch of the pubic symphysis. Bleeding points are quickly caught, and the incision deepened by cutting in the white line down to the peritonæum. If the knife vary from the white line, muscular retraction will at once apprise the operator of this fact. The parietal peritonæum is now exposed, caught between two forceps, lifted up, and incised, the incision corresponding in length to that already made.

Protruding viscera are gently crowded back, pushed downward and to either side, away from the pelvic field, and retained in place by a sufficient number of the gauze pads. The uterus, its appendages, and any abnormalities in the pelvic contents are thus brought into view, the abdominal parietes being meanwhile held upward and outward by the retractors or fingers of the chief assistant. Collections of pus and serous cysts, if not very small, must be drained away by means of an aspirator, care being taken that none of their fluids escape into the abdominal cavity.

After visceral adhesions are carefully separated from their attachments and bleeding points ligated with fine catgut, if the omentum be discovered adherent, it must be ligated in small sections with double ligatures and cut between them.

The pelvic contents being freed from the abdominal, and the latter pushed well out of the way as directed, the left ovary is gently seized, and that portion of the broad ligament which contains the ovarian vessels is ligated by transfixing with a double silk ligature, the point of transfixion being *below* the vessels. A hysterectomy forceps now clamps the mass of tissue between this ligature and the uterus as far down as the transfixing ligature. The left ovary and tube is freed by an incision which, starting between this ligature and the forceps, is carried on to the body of the uterus, impinging against that organ at a point one third of an inch above the shining white line that indicates the reflection of the uterine peritonæum on to the base of the bladder. The direction of the incision is now made transverse, carried through the peritonæum only so far as to expose the substance of the uterus itself, and stopping as soon as the right margin of the uterus is reached. The peritonæum, covering the anterior and left lateral aspect of the uterus, is now carefully stripped downward by the handle of the scalpel and the finger until the vaginal cervix begins to be encroached upon. The progression of this stripping process brings into full view the uterine

artery and its branches, when they are ligated *far* enough from the body of the uterus to allow a forceps to be imposed between this organ and the ligature, and *close* enough to the uterus to prevent the wounding of the ureter, which lies half an inch from and external to the point indicated.

The uterine vessels are now severed and an incision carried around the posterior surface of the uterus, freeing the peritonæum, which latter is then dissected downward as far as may be without cutting into the vagina. The operator with the curved scissors now cuts transversely through the cervix uteri, lifting that organ upward and toward the patient's right forcibly, but gently. When the section of the cervix approaches completion, increase the traction on the mass, snipping with caution the fibers of tissue as they are put on the stretch. As soon as the cervix uteri is freed, the uterine artery and its branches will be seen, when they are at once ligated.

Thus far the operator has followed the method of Dr. Kelly, of Johns Hopkins, but here deviates, as he would advise all surgeons less skilled than Kelly, in this manner: The ovarian artery on the *right* side is approached and ligated from above, as was the ovarian artery on the *left* side, differing only that hysterectomy forceps are not required after ligation of the right vessels, as no danger from hæmorrhage need be apprehended. The mass for removal may now be freed by section of the broad ligament, reaching as far as the terminus of the first incision (when ligating the right uterine vessels), cutting close to the uterine body, to avoid wounding the ureter, in the last half of the incision. All dangers have been avoided in this operation with the exception of an occasional wounding of some hæmorrhoidal vessel when separating the posterior surface of the uterus. Vessels so wounded can be easily grasped by the hysterectomy forceps and afterward ligated. If removal of the cervix be indicated, the simpler process would be to proceed on the right side as on the left, cutting through the vaginal vault anteriorly after the lateral attachments of the uterus are freed and vessels ligated, as previously directed.

As soon as the operator's finger enters the vagina the cervix may be dragged forcibly forward and easily circumscribed with the scissors, care being taken to keep close to it; or, which is better still, the initial step of the operation may be a circumscribing of the vaginal cervix with the cautery knife, in which the searing process

is continued for one half inch above the vagino-cervical junction. The work is then completed by the abdominal method.

The remaining steps of the operation are simple. If the cervical stump is left, the canal of the cervix should be touched with the point of the thermo-cautery, and a siver-wire suture, embracing only the tissues of the cervix, made to secure the mass. This suture is to be passed through the stump quadrilaterally, not only to prevent a possible slipping, but to occlude the canal and any vessel showing predisposition to ooze.

Looking down into the pelvis, one now sees the two crescentic lines of section of the peritonæum, extending from the upper border of one broad ligament downward, backward, and inward to the peritoneal reflection of the uterine body, thence continuing upward, forward, and outward to the opposite broad ligament.

These two lines of section are now sutured with catgut, carefully *inverting* the edges of the incision, thus bringing their peritoneal borders in close apposition.

The cervical stump is now made subperitoneal, or, in cases of removal of stump, the vagina is closed and the peritoneal cavity protected from infection thereby.

If adhesions have been extensive or ooze considerably, the question of drainage presents itself and must be seriously contemplated, each operator upon his own responsibility, judging as he must upon the merits of each individual case.

The closure of the abdominal wound and the dressing thereof are now done with care, and the patient removed to her bed, where, is necessary, suitable means of combating shock must be resorted to.

From the above argument, however imperfect, and presentation of an ideal abdominal hysterectomy, the following would seem apparent: If surgeons, either young or of small experience, attempt the operation we have considered, let it be by the abdominal route, and this after making themselves proficient and thoroughly conversant with all possible contingencies which may arise in connection with such an intrapelvic condition. Pursue this plan systematically, and only when continued successes follow well-directed efforts, let them weary of the one now familiar routine and sigh for other worlds to conquer.

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EDITORIAL.

ECTOPIC PREGNANCY.

A very few years ago this condition was so seldom met with or at least recognized, that it was considered to be of rare occurrence. Within the past ten years and even less, cases have been so frequently reported and by so many different observers that it is rather a reflection upon the professional ability and practice of any man who has not a modicum of these cases to treat. In spite of this, and perhaps on account of it, owing to the frequent difficulty of diagnosis without a radical operation, it is questionable if ectopic gestation occur so frequently as we are led to believe, since an ocular or microscopic demonstration is alone capable of establishing the diagnosis beyond peradventure, the numerous cases treated by means other than the radical operation are all open to scientific doubt. Nevertheless, the condition does actually occur with sufficient frequency to make its treatment of the first importance to the practitioner while, from an ethical point of view, owing to the fact that in this condition and its termination the fate of two human beings is involved—the mother and her foetal offspring—this subject implies a graver personal responsibility than probably any which lies within the scope of medical science.

For a great many years ectopic pregnancy has been known but the knowledge was almost theoretical and was of no practical value. Modern surgical knowledge and operative facility has solved half

the problem—it saves one human being by killing another; it rescues the mother but only by the deliberate destruction of the child. We have therefore, from an ethical and moral point of view, made no direct advance in the treatment of this condition, for what we know now and what is done surgically now were as well known and could have been as easily performed by our ancestors, had they had the benefit of asepsis. In future generations, our present methods of treatment will stand as an awful reproach to the profession, that for so many years we complacently applied the principles of pure expediency to one of the fundamental laws of human society—a law explicitly commanded by God and universally acknowledged to be based upon abstract justice—"Thou shalt not kill." For it can not be denied that the foetus is as much a distinct and independent human entity as is the child at the breast or, for that matter, the mother herself; that it is in no way personally responsible for the mother's jeopardy; and, finally, that it has as much inherent and inalienable right to its own life as has the mother to hers or the surgeon, who kills it, to his own. In thus applying the law of expediency in the treatment of ectopic pregnancy, we do neither more nor less than is done by the Esquimaux, by the Chinese and by other heathen peoples, who in time of famine murder their children that the stronger may survive by the sacrifice of the weak and defenseless.

It can, therefore, be only a matter of the gravest concern and not at all of satisfaction, to the conscientious physician, that in the present exigency of medical knowledge he is frequently confronted, in cases of ectopic pregnancy, by the alternative of waiting with folded hands until rupture has assured the death of the foetus by natural means or of killing in cold blood another human being because its presence is the innocent cause of certain peril to the mother's life. It is surprising how callous medical public opinion is—a public opinion, too, which very largely professes belief in the Decalogue—to the terrible moral responsibility involved in the modern accepted practice in this disease. If this public opinion were once properly aroused and if medical men would face the situation with the same honesty and logical acceptance of facts that they apply to other medical problems, some advance in knowledge might be hoped for, that would finally remove the stigma of foeticide from our practice. To those who frankly acknowledge the law of expediency in all things as the *summum bonum* our words do

not apply; we appreciate the logicalness of their position in this category and admire the consistency of their practice. But it is to those who proclaim their subjection to a higher law, the law which demands that self-interest must always give place to justice, that "the end can never justify the means" and who yet strive to blind themselves by sentimental sophistry to the incongruity of their position, to whom our words do apply. It will not be until these have faced the situation clearly, as we have said, that a concerted and general effort will be made to discover the cause and a prophylactic against this morbid condition, for by successfully working in this direction only, can we hope to escape from the dilemma. The work hitherto done in this field has been inconsiderable, sporadic, of little more than academic interest and has not been actuated and spurred on by that strong stimulus which only a true appreciation by the medical public of the moral aspect of the question and the inhumanity at present practiced can give.

The only theory of value so far presented, and this one only partially explains, is that the cilia of the tubes are destroyed by a previous inflammation; yet if this were the chief cause of ectopic pregnancy, it is difficult to understand why this cause does not always act equally under apparently similar circumstances; and we know that it does not. Undoubtedly the causes are manifold, but its prevention lies in the same category with so many other diseased conditions, both functional and organic, of various organs, which at various times seemed to be incurable and inscrutable and which are now entirely amenable to scientific treatment, that it is altogether justifiable to expect that the odium which is attached to the generally accepted practice in ectopic pregnancy to-day may be as efficiently removed.

Here is where our duty lies. We can not acquiesce calmly in legalized foeticide and feel that our duty is accomplished when we have merely learned the simple expedient of saving the mother's life by the direct destruction of that of another human being. We will go further and say that we consider that in this disease, the physician has two patients and that his obligation to the unborn child is as great as to the mother. The fact that the foetus is a silent and helpless victim can in no way lessen the physician's obligation toward it. The whole subject is based upon a simple argument of justice, which even a child must understand: *It is not within the power of a physician to give life; therefore, it is not within his right to take it away.*

TRANSACTIONS OF THE PHILADELPHIA OBSTETRICAL
SOCIETY.

Stated Meeting, September 3, 1896.

The *President*, E. E. MONTGOMERY, M. D., in the Chair.

Dr. HENRY LEAMAN reported

*A Case of Adhesion of the Appendix to the Right Cornu of the Uterus
following a Battey's Operation, with Specimen.*

M. H., aged thirty-two years, from whom this specimen was obtained, had the following history:

She had the appearance of a hearty, strong, well-developed woman. She first menstruated in her fourteenth year, and continued normal and regular until her eighteenth, when she began to suffer with severe pain every month and irregularity. The cause of this change she attributed to a sprain and a fright. The pains in her abdomen were accompanied with pain in the chest and back. She was treated for falling of the womb, changing doctors and visiting hospitals frequently.

In 1878, at the age of nineteen, she first came to me. She had severe hystero-epilepsy. I bled her in one attack from the arm, with the effect of arresting the paroxysm for the time being, but did not repeat it. Inhalations of ether were used. While at first they gave relief, she soon inhaled it by the pint without effect. Her spasms were at times rotatory in character. Bending her head between her knees, she would spin around in bed so rapidly and continue it so long that it was difficult to understand how her muscular power endured. This she kept up daily during several months. To stop it, as the head was always placed between the knees, I inserted a seton in the nape of the neck, and kept it in place for three months until the habit was broken. The hysterical element continued, and I fell into the routine of sponge tents, pessaries, cotton packing, iodine, etc.

In January, 1881, she went to Seventeenth and Sumner Streets,

and indulged in the rest cure during a period of four months. Coming out of the hospital unimproved, she got on the treadmill of uterine treatment, seeking other advice this time. In addition to uterine treatment, she was under a specialist for the throat.

Her hysteria took the bed form in 1882, and she went to bed without any reason or any necessity, and remained in bed three years, only getting out of bed to attend to Nature and, when nobody saw her, getting up occasionally to sit at the window. At the expiration of this period, she read in some newspaper an advertisement of a nostrum of some benefactor in Connecticut, which proved to be a convenient method of switching off on another track. After taking several supplies of this compound, at an expense of eight dollars each time, she was perfectly able to get up and go about as usual. She still, however, complained, and was again put under the cotton-pad treatment. While she was in bed she simulated every disease which she had seen or read about.

While lying in bed a younger sister was lying in the same room for a short time with an acute inflammation of the spinal cord, caused by a fall at school, and of which she died. Every symptom which her sister suffered, even to retention of the urine, she simulated, and with such an exaggeration as to draw the attendants to herself and away from the actual sufferer. She continued complaining that her sufferings were in no way relieved by any of the treatment she had undergone, and demanded that something further should be attempted in a surgical way. Her pains seemed to be increased, as she said, at the time of her menstrual flow.

Batley's operation was performed April 19, 1887. She complained of heats and flushes, and the ordinary symptoms of change of life. The examination of the ovaries showed numerous small cysts, and one appears to be tuberculous. This did not, however, relieve the pain in the right iliac region, her complaints continued as before, and she became constant in her demands for relief. In February, 1890, Dr. J. Price consented to take her to the Gynæcean Hospital, and, after opening the abdomen, relieved adhesions of the omentum and bowel. This operation was followed by a hernia, and without giving her the relief she sought. On May 12, 1891, an attempt was made to relieve her distress, and, at her urgent solicitation, an operation for the relief of the hernia was performed. Her symptoms all seemed exaggerated by the operation, and she grew weaker, vomiting being continuous, but not stercoraceous.

She died on the 19th of May, one week after the operation, from exhaustion.

She became jaundiced on the third day, but her temperature did not exceed 100°. Dr. Welch (W. M.) assisted me in the post mortem. Lungs were healthy and free from adhesions. Heart normal. Kidneys: right healthy; left apparently somewhat altered. Liver slightly fatty. Spleen normal.

The specimen shows a lengthy appendix, which became thoroughly united to the pedicle of the right ovary. Beneath this band, in the right iliac region, twelve inches of the ileum immediately adjoining the ileo-cæcal valve had become partially constricted, giving in all probability the pains of which she complained, and which two operations had failed to relieve. The first operation I really regard favorably. She passed through the change immediately after operation, and grew stout and hearty.

I shall leave the reflections of the reader to interpret the significance of such a history and such an ending.

DISCUSSION.

Dr. G. BETTON MASSEY: The patient whose history Dr. Leaman has given you was under my care prior to operation. She was sent to me before the first operation (when such cases ought to be sent), before any other method was tried. It is a very interesting case. I think that if more such cases were reported in their entirety, medical literature would be very greatly enriched, particularly surgical literature.

The case thoroughly demonstrated the absurdity of curing hysteria by removing the ovaries. There was no true disease of the ovaries; perhaps some suspicion of tubercular deposit in one of them. But both ovaries were removed. When the girl was under my care her physical condition was good; she was a plump German of very pleasing aspect.

Another conclusion which might be drawn from my own experience of several months' treatment of this case, under the theory that she had some ovarian or uterine disease, is that electrical treatment in such cases, while highly appropriate, is inefficient unless the whole *morale* and daily life of the individual is also altered. Such a case can not possibly be treated at home. The very best that we can do while the case is still in the unfortunate surroundings of

home life (which were as good in this case as they could possibly have been) is but little, for we have in this remarkable picture what in former times was called possession of the devil.

I regard the operations as absolute mistakes, and, of course, the final one, which ended in the death of a healthy person—healthy in every other respect except the mental affection—was a misfortune.

The proper course of treatment would have been seclusion, and subsequently a complete change in the life of the individual, together with any local or constitutional treatment required.

Dr. JOHN C. DA COSTA: I think Dr. Massey goes too far in attributing the adhesion of the appendix to the uterus as being the result of the operation. I have never done Battey's operation, therefore I do not know how far it might go toward forming adhesion between the appendix and uterus. However, I remember an operation I did with Dr. Fisher within a year—in fact, two operations—in which the appendix was found firmly attached to the uterus. Now, these women had never had any operation done on them; the ovaries, Fallopian tubes, and uterus were all intact. The operation was not done to remove the appendix, but, when we got in there, we found the appendix so firmly attached to the uterus that it had to be taken out with the tubes and ovaries, which were badly diseased.

Dr. J. M. FISHER: I am very sorry I was not here to listen to Dr. Leaman's paper. I shall simply refer to the cases spoken of by Dr. Da Costa, in which we found the appendix and uterine appendage adherent, not as the result of an operation, but as the result of disease. We know the appendix is not normally situated in the situation we find the uterine appendage, so that there must be some elongation of the appendix to cause the adhesion to take place. I recall a case I operated on in St. Joseph's Hospital several months ago, where diagnosis was made of disease of the right ovary, and, on opening the abdomen, the ovary was not appreciably enlarged, but the appendix was enlarged and adherent to the ovary.

In another case, operated on at St. Joseph's Hospital several months ago, a woman had very decided suppurative disease of both appendages, and at the same time a diseased and elongated appendix, which was adherent to the corresponding ovary.

Dr. E. E. MONTGOMERY: This specimen and its history are exceedingly interesting, and well worthy of our consideration. As

has been said, adhesion of the appendix to the pelvic organs is not an infrequent occurrence. We quite often find in abdominal operations for disease of the ovaries and tubes unsuspected suppuration of the appendix. In some cases it becomes adherent in a mass of inflammation about the tube or ovary, and the peristaltic action of the intestine dragging upon it gives rise to pain and distress, as was experienced by this patient. Not infrequently, disease of the pelvis is found which is secondary to disease of the appendix, and ovarian abscess arises from the proximity of the susceptible ovary to the infected appendix. When we consider the long period of time this patient was treated; that she had been subjected to electric treatment under its most prominent advocate in this city, Dr. Massey; that she had been placed under treatment in the infirmary for nervous diseases for a number of months, where she had had rest treatment, isolation, and undoubtedly massage and electricity; while all the methods of treatment have been followed except operative interference, it would seem that, if the latter is ever indicated when we are unable to obtain definite pathological lesions of the ovaries and tubes, this course is certainly one of those in which it would be justifiable. Every other method of treatment had been diligently and carefully pursued. The isolation Dr. Massey suggests had been employed; electricity had been tried. If I made any criticism upon the operation in this patient, I would suggest that it would have been better at first to have included the uterus in the removal as a possible source of the hysterical symptoms. We not infrequently find in patients who have been subjected to operation for the removal of ovaries and tubes, particularly in neurotic cases, that they continue to suffer for a length of time subsequently. Indeed, in some cases the suffering is even aggravated. I have seen two or three such patients, in whom subsequently the removal of the uterus brought about a disappearance of the abnormal symptoms, and enabled the patient to recover a fair degree of health. In these cases it is probable the uterus had been the seat of inflammation—in short, had been infiltrated by inflammatory exudate which had given rise to more or less compression of its nerve filaments, and thus produced the hysterical phenomena. We can readily understand how, after Battey's operation, the appendix coming in contact with the stump should become adherent, and this adhesion would give rise to more or less pain from traction upon the appendix. Where an abdominal operation is done for

whatever cause, and the appendix shows signs of disease, it is well that it should be removed.

Dr. MASSEY: There is nothing in my recollection of this case reported by Dr. Leaman to warrant the supposition that there was anything the matter with her pelvic organs, except the subjective symptom of pain. She complained of pain on the right side after the operation. Before the operation she complained of pain in the same side. It seems to me that the disease in the case was in the brain, and that to remove the ovaries, or even the uterus also, is merely one step toward what may be called a Spartan disposition of the case, which would be possibly the beheading of the individual from below upward; at any rate, a getting rid of all portions of the individual when we can not make them satisfactory. I can see no supposition which would warrant the belief that removal of the uterus would have cured that case, for to my mind the next step of the surgeon would have been removal of the coccyx, and later something else would have required removal. My experience has been that nervous symptoms are produced rather than relieved by removal of the uterus.

Dr. LEAMAN: I have merely to say that there was no evidence of any disease in the pelvis even after the operation done in 1887 by myself. She died in 1891. At the post mortem no adhesions of the loop of intestine, which was twisted downward, could be found. There was not a particle of adhesion; no sign of general peritonitis; everything was as smooth as it is on the specimen before you. It was simply that the appendix in some unaccountable way touched the tied-off extremity of the uterus, and, owing to the plastic inflammation that was going on there, took growth and fastened.

Maternal Sterility.

BY G. BETTON MASSEY, M. D.

(See page 577.)

DISCUSSION.

Dr. LEAMAN: This paper is interesting to me from the fact that the doctor has treated but five such cases. This proves what Dr. Billings says in reference to the statistics of decrease of childbirth in families. He makes the most just statement that it is due to an action of the will, not to disease, that children are not born. Sterility is due to a choice and not disease. Therefore the doctor only

gets a few people who have become penitent and want to return into a better course of conduct. This is a great evil.

Next to that cause is gonorrhœa. That can be helped in many cases by such treatment as Dr. Massey used and by ordinary treatment of endometritis. If the case of gonorrhœa is taken when it first passes into the Fallopian tubes and involves the ovary, it can be cured, and probably some of the patients may become able to bear children, but a great many of them will become sterile. This gonorrhœal infection also renders the male sterile. Occasionally you may have a scrofulous taint.

I want to state here a conviction I have which is appropriate indirectly to the present discussion. That is, I am inclined to think the great frequency of appendicitis is due in a large number of cases to gonorrhœal infection. I have treated three or four cases of appendicitis while a gonorrhœal attack was going on. If a man can have a rheumatic inflammation from gonorrhœa, producing an abscess in his arm, I do not see why he can not have an abscess forming there, more particularly because of its direct connection with the vesical organs.

Dr. G. I. MCKELWAY: I understood Dr. Massey to speak of a factor he believes important in the act of conception—that is, the suction action or the muscular action of the uterus at the time of intercourse. I do not think that any such action upon the part of the uterus has ever been proved, and its importance certainly has not. I know individuals have made certain statements concerning what they allege they have seen under what was practically masturbation of the female, but even if true nothing of importance is proved by them. It has certainly been clearly shown that no such action is necessary for conception, notably in the case in which Dr. Marion Sims, I believe it was, impregnated a woman with her husband's semen by the method of introducing it within the uterus through a pipette.

I listened to the doctor's paper with much care, and the only thing proved by it is that abortion will probably result from the introduction of an electrode into a pregnant uterus. The variety of the current of electricity is not important. The introduction of the electrode is sufficient.

As to the point that Dr. Leaman has sought to make in regard to appendicitis as a result of gonorrhœa, he has advanced nothing to sustain it.

I think most of us have been able to find in every case some exciting cause for the inflammation—usually a particle of fæces, possibly a foreign body of some sort, or a catarrhal inflammation. I have never found the gonococcus in appendiceal pus, nor do I think any one has.

We often hear about seeds, but very, very few cases owe their origin to seeds. I do not think gonorrhœa could be a cause of appendicitis. Dr. Leaman has confounded the accidental coincident occurrence of the two conditions with cause and effect. They were not so related, nor has he advanced a suggestion of proof that they were.

Dr. MASSEY: I laid very little stress in my paper upon the suction action of the uterus, because it is very clear to me from what I have been told by patients that pregnancy is often produced by no participation, which would leave out all muscular action of this sort. Yet it would seem to me that such an action has been regarded by some observers as present in well-endowed individuals, and that an attempt to increase such a condition would be far more sensible than the stretching operations to let in spermatozoa, which are surely small enough to pass the alleged constrictions. It was mainly to call attention to mistaken mechanical ideas and to the lack of attention to the vital problems of stimulation of ovulation, stimulation of nerve tone, and stimulation of muscle tone that my remarks were directed.

I want to protest against what Dr. Leaman said about the main cause of sterility being gonorrhœa. Possibly we might say that, but to lay too much stress upon it would be an injustice to certain cases of this trouble that I have seen. At least one of the cases reported I am positive had no gonorrhœa. She went through the stretching plans, and she has not conceived yet. This was done many years ago, and now the uterus is so large that the menstruation is too free.

There unquestionably is very little desire upon the part of average American women for children. It is a singular fact that, of the five cases who sought me for this condition, four were American Hebrews. The Hebrew woman still desires offspring. The four Hebrews were successful in obtaining their wish.

As to Dr. Billings' belief in the will power as a cause of sterility, it must only be interpreted as willing some method of prevention to be efficient, as otherwise I am afraid the world would be depopulated.

Dr. LEAMAN reported the case of a young man, a laborer, who was under his care for an attack of gonorrhœa. The first attack of appendicitis occurred three weeks after his gonorrhœal infection. He was doing nicely under treatment for the gonorrhœa, following his occupation of driver, jumping on and off the wagon in the discharge of his various duties. The temperature, without any warning, rose to 103° when the first attack of appendicitis supervened. To my mind the gonorrhœa was the only thing that could possibly have produced the inflammatory condition. He had a second attack of appendicitis shortly after the first, but is now perfectly well, and has been for three years. I don't believe in the seed theory at all. Many years ago I did believe in it, and, I think, read a paper before the County Medical Society on the subject. I think we have yet to study many things in pathology and physiology before we can tell what produces appendicitis. There is something about the peritonæum which is known, but there is a great deal which is not known, as exemplified by the specimen I brought here to-night, but the specialist will have to get to work and study it out for us. These things will be explained by and by. At present a great abdominal field is open, and we are working here and there upon it in a scattering fashion; we have just got into the abdomen, and we are like boys playing at school, but we have scarcely begun to study the problems. When these are explained we will understand appendicitis. No one understands appendicitis; we can jump at the appendix and cut it, but that is all.

Adjourned.

FRANK W. TALLEY, *Secretary*.

Stated Meeting, October 1, 1896.

CHARLES P. NOBLE, M. D., in the Chair.

The Course of Labor as influenced by Suspensio Uteri.

BY CHARLES P. NOBLE, M. D.

(See page 543.)

DISCUSSION.

Dr. JOHN C. DA COSTA: I have listened with interest to this paper, having done a number of operations myself of this character,

and having watched the cases as closely as I could since. I think Dr. Noble's paper is a very strong argument against ventrofixation and in favor of suspension of the uterus. Thus, where difficulty has occurred in these cases, it has been where the uterus was firmly fixed to the abdominal wall, where it has been tilted out of place a little, where the posterior wall has been brought against the abdominal wall, and where firm bands of growth have occurred. Whereas, in suspension of the uterus, when you take but a very small quantity of tissue (only an eighth of an inch), where the stitches taken do not go one sixteenth of an inch below the surface, and the first stitch is brought out through the peritonæum covering the top of the uterus, and only enough of the tissue to hold it in place is taken; it is remarkable what good results one gets; it is astonishing how little it requires to hold a uterus in place. As to ligature, silkworm gut will remain unaltered in the abdomen an indefinite time. It is not so with fine silk or catgut. My experience in cases I have operated on myself, and which have had to be opened for other diseases at the end of five or six months, is that the uterus is not firmly attached to the abdominal wall. I recall one very striking case in which I opened a woman with damaged tubes and diseased ovaries, removed diseased tissue, and did suspension of the uterus, and five months later was compelled to open her for tubercular peritonitis. I looked very closely for the ligature, which was of the finest silk, that would hold the uterus up, but it had entirely disappeared. The uterus was suspended by a semifibrous and semiserous cord about two inches long, and perfectly normal and movable. If that woman could have become pregnant, there would have been no interference from distention. A band that would stretch two inches in five months is certainly pliant enough to give way in nine months of pregnancy, and give the woman no inconvenience. This has been the experience of other operators, Dr. Kelly among the number. I do not do the operation exactly as Kelly does it. He takes up the uterus with back of fundus toward the abdominal wall. I find the better way is to bring the top of the uterus up, use ligature only strong enough to hold it—one that will disappear, such as very fine silk or catgut.

As to the cases cited by Dr. Noble, the first case was not one of suspension, but of fixation. She is not the only woman who had to have an abortion for uncontrollable vomiting, etc., in pregnancy. There is no proof that the symptoms were due to the operation.

In the second case he had a good result following *suspension*. The other case, where hæmorrhage followed, in which the woman had twins, the uterus did not contract properly. This is not at all unusual. I have seen precisely the same symptoms where no operation had been done and twins were present. I was called in consultation a short time ago, found the uterus wide open, but not even an attempt at contraction, and both babies had to be delivered with forceps.

The fourth case that he stated—the ventrofixation by Dr. Noble—was among the first cases reported of difficult labor following fixation. In it you had the uterus tied fast to the abdominal wall. In that operation the peritonæum did not give, and the two muscles (abdominal and uterine) were attached as firmly together as the muscles of a cut in the abdomen or any other part of the body become after operation. Therefore Dr. Noble's paper is a strong argument in favor of ventrosuspension done in the proper way. If you examine most of the cases, you will find they were done by men who thought it necessary to make very firm attachment between the uterus and abdominal wall.

Dr. NORRIS: It would have been very interesting if Dr. Noble had carried out in his investigations an inquiry as to how the operations had been performed in those cases where there were subsequent difficulties during pregnancy or at labor. It certainly seems that the technique influences the results very much so far as concerns pregnancy or difficulty at labor.

Dr. C. P. NOBLE: I am entirely in accord with Dr. Da Costa and others who believe that the proper operation is to suspend the uterus lightly to the abdominal wall. However, trouble may follow even that method. Dr. Kelly had a case which was delivered with great difficulty in the West Philadelphia Hospital for Women. I am personally familiar with this case, as I saw her while she was pregnant. There was infection of the abdominal wound, causing a broad surface of attachment between the uterus and abdominal wall. It was not the technique but infection which gave the trouble.

I opened the abdomen to-day of a patient who had this operation performed by another operator some two years ago, and which was followed by suppuration. It took me half an hour to peel, cut, and dissect the uterus loose from the abdominal wall in order to take it out. No matter what method of suture is used, if we have

suppuration afterward it gives just as firm fixation of the uterus to the abdominal wall as it is possible to get.

I think Dr. Da Costa's argument is a little too absolute for this reason. The statistics I collected in this country were, I am sure, correct, because I not only collected by correspondence, but, after making out the tables, sent them back to every one from whom I got statistics for verification. The foreign statistics were collected by Dr. Gordon out of the foreign journals, and, with the possible exception of duplication of cases, I think they are correct also. As a matter of fact, there were about two per cent. more difficulties in labor in American cases than in foreign, although all foreign cases had firm fixation of the uterus, whereas the large percentage of the American cases were operated upon by Dr. Kelly's method, which means slight attachment of the uterus. The difference in cases operated upon abroad and in this country is that abroad the anterior face of the fundus is attached to the abdominal wall. The attempt is made by most operators to fix firmly, but it is the anterior rather than the posterior face of the fundus which is attached to the abdominal wall. Under these circumstances if pregnancy takes place there is a greater portion of the uterus left free to develop than would be the case if the posterior face of the fundus were stitched. I believe that is the explanation why there has been possibly a little less difficulty in European cases. If we are going to fix the uterus firmly to the abdominal wall we should sew the anterior face of the fundus and not its posterior face. My own opinion is that we should not fix it firmly.

Dr. Norris asked if I tried to find out the technique followed in the cases having difficult labors after operation. I did, but my experience was that of every one else who has tried to get statistics, that the reports were too incomplete to draw satisfactory conclusions. The point of greatest interest in the American cases was that whereas Dr. Kelly had himself done almost one third of all cases reported, in his cases there had been only one difficulty in labor encountered, and in that case it was from suppuration and not from the technique.

Two Cases of Parotiditis following Cæliotomy.

BY WILMER KRUSEN, M. D.

(See page 588.)

DISCUSSION.

Dr. DA COSTA: The thought occurred to me while Dr. Krusen was reading this paper that possibly, as the case was not septic at the time of operation, it may have become so in the hospital. Any one who knows what a large general hospital is knows what a great number of visitors there are—men, women, and children—passing to and fro at the visiting hours, and how easily the disease may have been communicated by some one of them.

Clinical Observations upon Ventrofixation of the Uterus.

BY JOHN M. FISHER, M. D.

(See page 552.)

DISCUSSION.

Dr. A. J. DOWNES: About the method of suspending the uterus what I have to say is partly a repetition of what Dr. Da Costa said. The first patient on whom I performed ventrofixation had considerable bladder trouble, and the uterus descended low in the pelvis. In doing this operation I had placed two stitches not deeply through the uterus, half an inch below its summit anteriorly, the other behind the middle of the fundus posteriorly. They were brought through the abdominal wall, emerging from it at a point below where they had entered the wall from within. When tied, the knots or shots were slightly below the level at which the sutures entered the uterus. This operation and others similar that I have seen, where the sutures enter near the top of the fundus or behind it, and are brought out of the abdomen on a level, produces no suspension. It fixes the fundus uteri. Sharp flexion in the majority of cases should occur, for we have the utero-sacral ligaments with the utero-vesical slightly assisting, lifting the uterus counteracted by the fixed fundus and abdominal pressure from above. The resultant of the forces determines a flexion. This offers an explana-

tion of the trouble occurring in pregnancy after these operations. In studying the matter, I decided that fixation without suspension was a failure. During the last six months I have made use of the following technique in six cases: After applying a tenaculum to the summit of the fundus, the uterus is lifted high out of the pelvis. One suture is used only to suspend and fix. It passes through the abdominal wall at a point about three fourths of an inch above the level it is to pierce the uterus; from this point of entrance it descends toward the level where it is to enter the uterus. It is then passed through the anterior wall of the uterus three fourths of an inch from its summit, very little below the serous cover, engaging but little of the uterine muscle. The suture should pass through the uterine tissue a width of not less than half an inch. It is then passed out through opposite side of incision upward. The serous coat of uterus above the suture is slightly scarified. After closing the abdominal wound, this suture is shot to distinguish it, and removed in three or four weeks. By this method there is no physical reason why changes detrimental to the natural progress of pregnancy should occur in the anterior wall of the uterus.

Dr. DA COSTA: There is one point in this discussion on suspension and Dr. Fisher's case which has not been touched on. That is, the good results that we get from these cases is due to something besides the mere suspension of the uterus. Take, for instance, a uterus without any adhesions at all, a uterus sharply flexed, where the fundus seems bent back against the cervix; if you straighten that uterus out you will find that the posterior wall at the bend has little or no tissue. When you suspend it, it takes a very little thread to sustain it, and the suspension puts the uterus in such a position that blood can get to it and afford the proper nutrition, and some months later you will find a total change in the part formerly so attenuated.

Dr. Fisher's argument will not always hold good in cases where there are adhesions. I have heard of one case lately where there was a good deal of distress after operation, and in which pelvic massage was used with very great relief; but I had an opportunity to examine that case, and I found that there was now a mass in the pelvis, the operation having been done some months ago. The question has arisen in my mind whether the trouble was not due to something besides suspension; whether the pelvic massage did not loosen up new adhesions or growths, and give the woman more or less relief.

Dr. R. C. NORRIS: There were two points that occurred to me as Dr. Fisher read his paper: His recommendation, as I understood it, is to introduce sutures and remove them within a reasonably short time (ten days), and then to substitute a pessary to retain the uterus in position during the succeeding four or five weeks. The only criticism that I would offer is, first, the inquiry whether or not his case had been treated with a pessary before operation. Sometimes, although rarely, a very good result follows wearing a pessary for five weeks. The uterus is held forward, drainage is obtained, the uterus becomes smaller, and, if the appendages are not diseased, the uterus stays forward. My second criticism is of the value of through-and-through sutures. If we introduce sutures, shotged or otherwise fixed, through the abdominal wall, and remove them within ten days, we make the uterus hug the parietal peritonæum, and we expose the patient to the danger of widespread inflammatory change between the uterus and the anterior abdominal wall—two results we wish to avoid.

For a time I used through-and-through silkworm-gut sutures shotged on the outside, allowing them to remain four weeks. I gave this method up because I found that widespread inflammatory change, with thickening and infiltration, followed, and firmly fastened the uterus to the anterior abdominal wall. This plan seemed feasible at the time, but I have since found better results from two fine silk sutures, including the peritonæum and a few fibers of muscle beneath the fascia. Occasionally a sinus will persist after this operation, but it should be remembered that the sinus usually comes from the silk placed on the stump of a tube on one side or the other that has been removed at the operation. It commonly happens that one of the appendages, or perhaps both, have been removed and the uterus stitched forward. I have had sinuses occur in two cases, but in both cases the uterine appendages had been removed. My opinion is that when a sinus forms it is sometimes best to let it alone. I had an unfortunate experience follow the removal of a silk ligature which caused a sinus after an operation, at the close of which ventrofixation had been performed. Without difficulty I removed the ligature with a probe bent at the end to make a small hook, and two days later a violent fæcal fistula followed from the depth of the sinus, that eventually closed. This made me think that the removal of a piece of silk from a sinus, while often desirable, is not always free from danger.

Dr. W. S. STEWART: I had two cases this summer that refused any operation for ventrofixation of the uterus; both had retroflexion, and of a hæmorrhagic nature. I was obliged, therefore, to do something. In both cases I used the stem pessary, and had, to my delight, splendid results. I not only used the stem pessary, but I used a Smith-Hodge pessary to hold the cervix well back. After several weeks I removed the pessaries, with satisfactory results both as to the metrorrhagia and position of uterus.

Dr. NOBLE: There are several points which I noticed in Dr. Fisher's paper. In the first place, the statement that the firmly fixed uterus is often very painful. I have suspended or fixed the uterus about seventy times, and in none of the cases has the patient complained of any special pain, whether it was firmly fixed or not. The next point was suppuration, which occurred weeks after the operation, from buried sutures. I have introduced somewhere between three and four thousand buried silkworm sutures in the abdominal wall, and have never seen one suppurate, unless within a week after it was put in; therefore his must be an exceptional experience.

Concerning the question of using a through-and-through suture, as directed by Dr. Fisher, I believe that Dr. Norris is right, that the through-and-through suture causes much firmer adhesion between the uterus and abdominal wall than does the buried suture. This can not help but be the case, because it holds down the abdominal wall against the uterus until its time of removal. One of the advantages of light attachment of the uterus to the peritonæum is that the peritonæum is not attached to the underlying muscle or fascia, and immediately after operation intra-abdominal pressure pulls the uterus away from the anterior abdominal wall, so that in a measure it prevents an extensive adhesion between the uterus and abdominal wall. I have removed a number of ligatures from sinuses. I believe the patient in the case reported by Dr. Norris would have had a fæcal fistula in a day or two if the ligature had been allowed to remain; it simply indicates that the sinus was on the point of burrowing into the bowel, and it was merely a coincidence that the fæcal fistula followed the removal of the ligature so closely. If it is unusual for a fæcal fistula to occur after a silk ligature is removed, and as it so greatly lessens the annoyance upon the part of patients, I think we should not be influenced by occasional accidents such as that reported.

Dr. J. M. FISHER: In none of the cases reported were pessaries

used previous to the operation, for the reason that it was impossible to reduce the uterus and hold it in position by this means, simply because the organ had been retrodisplaced for so long a time that obliteration of the posterior vaginal fornix obtained, so that the pessary alone would have been useless. But after fixing the uterus to the abdominal wall, and then introducing a pessary, the action of this instrument on the cervix certainly served a useful purpose.

I remember distinctly in all these cases a reduction of the displacement was impossible previous to the operation, and yet there were no adhesions. I think in all probability the uterus might have been reduced under ether. I find posterior displacements of the uterus often regarded as irreducible become reducible when the patient is placed under the influence of an anæsthetic. In very many of these cases the patients can be relieved by curettement, omitting anterior fixation of the uterus. In many cases the displacement of the uterus does not give rise to symptoms, but they depend upon the associated chronic metritis. By relieving the metritis a displacement may remain without further symptoms. Many cases of uncomplicated displacements exist without symptoms. I recall a patient who applied to me with a posterior displacement fixed by inflammatory disease. The uterus had been treated by a physician on Broad Street, who tried to reduce it every time the patient went to his office, thus aggravating her symptoms. After placing her on hot-water douches and a general tonic treatment, the inflammatory condition soon subsided, and the patient has not suffered any since, although the displacement remains. With reference to sinuses forming after the introduction of buried sutures, I wish a certain gentleman of experience whom you all know were here this evening. He told me of a case in his practice that returned to him several months after a section with a sinus at the site of operation. I recall the case of a woman who had an operation done for hernia, where buried sutures were introduced. Five or six of these sutures were removed at as many different sittings, subsequently, because of suppuration and formation of sinuses some weeks after the operation. First one suture, then another, and so on, every one gave rise to the same form of irritation, and had to be removed.

Official Transactions.

FRANK W. TALLEY, *Secretary*.

TRANSACTIONS OF THE CHICAGO GYNÆCOLOGICAL
SOCIETY.

Stated Meeting, September 25, 1896.

The *President*, E. C. DUDLEY, M. D., in the Chair.

Ectopic Pregnancy.

Dr. CARL WAGNER (by invitation): About nine o'clock this morning I was called in haste to see a patient who was suffering very great pain. On arriving at the house, I learned that the patient had been taken with severe pain at 8.30, immediately after intercourse; she also vomited. I at first thought the trouble to be appendicitis, but, on examination, could find nothing abnormal in the region of the appendix. History of four months pregnancy which she gave suggested the possibility of extra-uterine pregnancy. The pulse became rapid in thirty-five minutes, and a diagnosis of rupture of extra-uterine pregnancy was made. Dr. Reynolds was called in consultation, and coincided with my diagnosis. The patient was removed at once to St. Joseph's Hospital, which was near her home. The preparations at the hospital were made very quickly and the patient operated upon. Before the anæsthetic was given about a quart of salt solution was injected subcutaneously. The entire operation took about twenty minutes, but before the last stitch was tied the patient went into collapse and died.

Dr. G. W. REYNOLDS: Dr. Wagner has given a very clear history of the case, and I do not know that there is anything I can add to it except to congratulate him upon his quick and accurate diagnosis. He saw the case in the morning about nine, and I saw her in consultation at ten. It required but one glance at the patient to confirm his diagnosis. She was at that time almost exsanguinated, almost pulseless, and it was a question whether to give her the benefit of an operation or allow her to die without. We concluded to give the patient the benefit of the doubt, and, as she was in close proximity to St. Joseph's Hospital, I advised that she be taken there immediately, and in the meantime preparations were made for a laparotomy. Before taking her from the house everything possible was done to prevent the immediate effects of hæm-

orrhage—the legs were bandaged, the lower extremities elevated, and a hypodermic injection of strychnine was given. As soon as she arrived at the hospital a physiological solution of salt was administered subcutaneously. Very little anæsthetic was required. A median incision was made, the tube was tightly grasped and tied, and the foetus removed. The operation did not take over twenty minutes from the time the patient reached the operating room, but unfortunately she died.

This case brings before the Society the question whether to operate in such cases. Very likely there are gentlemen present who have had experience in operating upon cases that were almost exsanguinated, as this patient was. There was a possible chance of saving her life, and whether it was advisable to take that step or to let her die without the possible benefit of an immediate operation was thoroughly discussed and deliberated upon before operating. I hope the question will be thoroughly discussed, and I should like to hear from the gentlemen who have had a greater experience with ectopic gestations and ruptured tubes.

Dr. J. H. ETHERIDGE: I do not see what else the gentlemen could have done under the circumstances, so I think there is nothing to discuss on that point. I would like to ask the doctor how he bandaged the extremities, and what amount of blood he found in the abdominal cavity. In such cases, where there is evidence of a terrific hæmorrhage going on, why would it not be possible to produce compression of the abdominal aorta low down? I am in the habit of teaching students in cases of post-partum hæmorrhage to slip the hand up the abdomen and press the aorta against the back bone, and that will sometimes stop the hæmorrhage. These are the tragical cases of gynæcology. I think if Dr. Reynolds had it to do again he would make an immediate operation right in the house, no matter how miserable the surroundings, and get at the broad ligament. I see nothing to criticise but everything to commend in the management of this case.

Dr. J. T. BINKLEY, JR.: Is there not some one present who can decide the question of transfusion in cases like the one reported? Is it not a questionable procedure under such circumstances? I have no criticism to make of the treatment pursued in this case, but it seems to me that by filling the heart it is stimulated, and causes renewed hæmorrhage where there might be a cessation of the hæmorrhage from low blood pressure or clots. In cases that are

nearly exsanguinated it takes but the slightest amount of anæsthesia, and it takes but a moment to go into the abdomen and catch the bleeding point with forceps.

Dr. E. C. DUDLEY: I have in mind two cases, both seen in consultation with Dr. Bacon, of Englewood, in which a diagnosis of extra-uterine pregnancy with ruptured tube was made, and in which the patient was so weak from loss of blood that no operation was done. All preparations were made for operation in each case in hope that a little rally would enable us to operate. But the rally came so gradually that before we really considered the question of operating in either case the patient was considerably better, and, to make a long story short, both patients recovered without operation. Experience of this sort illustrates the fact that the hopeless condition is often rather apparent than real. I have no disposition to call in question the general rule of operating as soon as possible in extra-uterine pregnancy. These two cases are not cited as a criticism of the course pursued by the essayist. They are only intended to show that recovery without operation may occur when the condition is so grave as to put operative measures out of the question.

In former times hæmorrhage from an extra-uterine pregnancy was called pelvic hæmatocele. The old records are full of terrible cases with recovery without operation. No one thought of operating then, at least not until the formation of pus changed the diagnosis to pelvic abscess. I well remember a case of this kind which occurred about a year ago in St. Luke's Hospital. There was overwhelming hæmorrhage from rupture of the pregnant tube. The collapse was as marked as it would be in Asiatic cholera. It is not conceivable that the patient could have sustained an operation at this time, and yet she slowly recovered. I afterward opened the abdomen and removed a suppurating tube, together with some clots of old grumous blood. The tube upon removal showed evidence of a former rupture, due to extra-uterine pregnancy. It is a vexed question in surgery to know when to operate in these cases and when to wait. If the patient is bordering on collapse, one may wait with considerable hope that recovery may take place without operation. If so many extreme cases once recovered when the disease was called pelvic hæmatocele, why should they die now when the name has been changed to extra-uterine pregnancy with ruptured sac?

Dr. J. H. ETHERIDGE: I was never more impressed with the value of human blood in saving life than in a case where I had a ligature slip off. It was an ovariectomy. I reopened as soon as possible and got out two pints of blood. It seems an incredibly small amount to kill a woman, but she died. I have seen half a dozen cases in which patients have died from hæmorrhage. There is a certain point beyond which the loss of blood does not permit a person to recover. What that line is or where it is I do not know; whether it is the disproportion of the blood between the tissues and that in the vascular system, I can not say. When patients die from hæmorrhage, I suppose they die because of anæmia of the cardiac center in the medulla; there is not enough blood there to keep the blood center going. I am at a loss how to express myself so as to lead any one to know when the patient has crossed the line from which she never comes back in a case of hæmorrhage. I know that patients die from hæmorrhage after they have had intracellular injections of saline fluids; I know that after we use all sorts of stimulants—cardiac stimulants, nerve stimulants, strychnine, digitalis, and things of that kind—they die without losing any more blood.

Dr. M. L. HARRIS: The point Dr. Etheridge mentions I think has been realized a good many times by all surgeons. The doctor has probably seen cases, as I have, in which there would appear to be no doubt as to the benefit of saline injections. We know experimentally that we can reduce the quantity of blood in an animal to the point the doctor speaks of and it dies. We know, too, after they reach this point, if we supply a fluid to the vessels and heart, these animals recover. Patients may reach the exsanguinated stage, and, if we supply a certain amount of fluid, they get well. Of course, this is difficult to demonstrate in any particular case. I think one point which is probably not sufficiently appreciated is the injection of a sufficient quantity of fluid. The amount of blood lost to the fluid injected is too great. I have been recently in the habit of injecting larger quantities, and I feel certain that in a case recently operated upon the patient's life was saved by the large amount of fluid that was injected. Transfusion was made of a salt solution three or four times, and, while I feel sure this patient had crossed the line Dr. Etheridge spoke of, still she recovered. Another point in connection with these cases is the removal of the blood from the peritoneal cavity. Dr. Reynolds did not say whether

he removed it or not, and the patient died so quickly it would not play any part in this case; but I think the blood, either the clots or liquid, should not be removed from the peritoneal cavity. It is equivalent to so much transfusion, and, if no infection takes place, the patient recovers more quickly, and the blood is reutilized by the system by being left in the peritoneal cavity. That is a point which has been demonstrated experimentally. I have seen a patient with ruptured tubal pregnancy operated where the peritoneal cavity was filled with blood and the patient almost moribund—pulseless. The tube was quickly grasped and ligated, requiring scarcely five minutes to do, all the blood left in the abdomen, and the patient recovered. So I think the blood should not be removed from the peritoneal cavity in these cases. I had a case about a year and a half ago of secondary hæmorrhage following operation in the abdomen, in which this procedure was adopted. This patient was likewise almost pulseless at the time; the abdomen was quickly reopened, the bleeding points secured, and the blood left. The patient recovered.

As to the time for transfusion, I think it is useless to transfuse as long as the bleeding point is still unsecured; we are simply putting more fluid into circulation to aid the heart to pump out what little blood is left. The first thing should be to secure the bleeding point, and then transfuse. The cases Dr. Dudley spoke of that recovered without operation should be considered exceptions, and not the rule. That a patient is more likely to recover by being left alone with a bleeding point than to recover after the bleeding point is secured does not seem rational. We have to take into consideration here the shock attending operation, and the anæsthetic, and we know that amounts to considerable. When a patient in such a condition will stand the additional shock and when not is a point to be determined entirely by judgment. Like Dr. Etheridge, I am unable to express the condition of the patient when we should operate and when not, but I do not think there is any doubt of the general principle that these patients should all be operated.

Dr. ETHERIDGE: I would like to ask how long it was from the time the doctor first saw the case, at 8.30, until the operation was completed?

Dr. WAGNER: About three hours.

Dr. ETHERIDGE: The reason I asked was this: Dr. Dudley speaks of its being several hours in his cases from the time of rup-

ture until operation was abandoned. I think there is a difference between these two cases. Dr. Wagner reports this as one of those very severe hæmorrhages in which there was no possibility, it seems to me, of saving the patient. Of course there are hæmorrhages and hæmorrhages; we all know that whenever the artery that is giving rise to the hæmorrhage begins to contract the safest thing to do is to let the patient alone and not to transfuse, and, as Dr. Harris says, encourage the heart to pump out what blood is left; so I think there is a difference between Dr. Dudley's cases and these cases.

Dr. G. W. REYNOLDS: I advised Dr. Wagner to operate in this case because I made a vaginal examination and there was no swelling (no tumor) present. If the rupture had taken place between the folds of the broad ligament extraperitoneally, there would have been a swelling in the pelvis. I knew from the condition of the patient that there was an extreme hæmorrhage. In reply to the question of Dr. Etheridge as to the method of bandaging, the legs were simply elevated and bandaged. While there was a possibility of this patient rallying, I am satisfied that she would have bled to death in a very short time if no operation was performed. She was in close proximity to the hospital, where everything was aseptic, and it required only about ten minutes to take her there and place her on the operating table. It would have been very well to open the abdomen in the house if we were prepared for it, but it would take us one hour to prepare the patient and get the instruments in readiness for the operation. For that reason I advised that she be taken to St. Joseph's Hospital immediately, and, in order to fortify her for the immediate effects of the operation, I advised a hypodermic injection of strychnine, and no other stimulants were administered until the tube was grasped and tied. Then I advised the rectal injection of whisky (two ounces with six ounces of warm water), and all the heart stimulants in the category of medicine for use in such cases were administered. I knew that the patient would certainly die within a few hours or so if something was not done, and, if we had allowed the patient to die without giving her the benefit of an operation, I should have always censured myself. The patient was given a physiological saline solution (she must have received a quart) in the subclavicular region. I did not advise opening a vein in order to give the transfusion because I thought it was unnecessary; I was satisfied we had done all that was possible.

We did not remove the blood which filled the abdominal cavity, but simply tied off the tube and removed the foetus; we merely wiped away such clots of blood as forced themselves out; there was no effort upon our part to clean out the abdominal cavity; we did not want to lose any time. Of course, as Dr. Harris says, there will be absorption; it is the same as filling the abdominal cavity with warm water, which prevents shock. By removing the blood I believe you chill the intestines, and that is where surgical shock occurs. We should expose the intestines as little as possible; it was my object not to chill them, because the patient was then suffering from shock, not surgical shock, but from the ruptured tube and the hæmorrhage.

Dr. J. A. LYONS: I have not the least doubt but that almost any one of us would have acted as these gentlemen did under the same circumstances. As we look at the case now, I am inclined to think perhaps most of us would have gone still further and operated without taking the patient to the hospital and without transfusion, previous to opening the abdomen, but at the close of the operation. The doctor says he would not have dared to do this without being perfectly aseptic. That is right, as a rule, but there are times when we have to stop the hæmorrhage as soon as possible, and I have heard Dr. Etheridge say in this Society, "Cut down, get your bleeding point, tie it off, do it in a minute or two, and the danger may be averted." The worst case of this kind I ever saw was operated upon in a room black with soot. We dared not wait, so we put her on the table in the kitchen, which was the only place warm enough to operate in, and the patient made a good recovery. We boiled our instruments, made our hands clean, put on clean sheets, and operated as quickly as possible. I think in less than a half hour from the time we got there the operation was finished. I should say in this case the hospital was a little too close; had it been farther away, they probably would not have taken the patient there. Still, I think under the circumstances most of us would have done the same thing.

Dr. ETHERIDGE: I may be mistaken, but there is one thing I would criticise in the doctor's procedure, and that is bandaging the legs; it would have been better if he had kept the blood out of the trunk, because as long as the blood can go through an artery it will not stop. Bandaging the legs from the feet upward would force it up, and the volume would be increased. I think there is only one

opinion to be expressed—that is, the highest commendation for the operation. If he had done anything else it would have been almost criminal.

Dr. CARL WAGNER (in closing): I will only say that we left the blood in the abdomen from the same point of view as Dr. Harris has suggested. In regard to operating in spite of the patient being almost pulseless, I operated three years ago on a case of extra-uterine pregnancy that had been pulseless for about half an hour, and I operated in a kitchen, but the patient got along nicely and is well to-day. I found at that time, however, that operating in the house is sometimes accompanied by too many annoying complications, as the surgeon who assisted me fainted, the nurse also fainted, and we had almost as much work with the doctor and the nurse as with the patient.

Ectopic Pregnancy.

Dr. KARL F. M. SANDBERG: The patient from whom this specimen was removed was twenty-eight years old, well nourished; had been married seven years; she had one child six years ago, and had not been pregnant since. She menstruated on the 19th of June, missed her period in July, and on the last day of July was taken with a sudden pain in the left inguinal region, with a feeling of weakness in the limbs, and went to bed. She did not call a physician at the time. She stayed in bed two or three days, got up again, and was up two or three days; then had to go to bed again, and stayed there ten or twelve days. She then got up feeling pretty well. While in bed the second time she flowed a few days, and, after stopping for a while, it commenced again, the flow being light-colored blood, which gradually grew darker; it continued for three weeks. Two physicians were called in, a diagnosis of extra-uterine pregnancy was made, and operation advised.

On examination, a tumor was found in the upper part of the left broad ligament about the size and shape of a goose egg, somewhat movable, not very tender; uterus somewhat large; the diagnosis was confirmed. There was still some doubt whether it was a tubal pregnancy without rupture or whether rupture had taken place at the time the symptoms indicated. The result of the examination tended to the belief that no rupture had taken place. Apparently the location of the pregnancy was in the tube; the broad ligament was seemingly free. The abdomen was opened,

and immediately arterial blood escaped from the cavity. On introducing the fingers the omentum was felt adherent to the inlet of the pelvis anteriorly. This, as well as some adherent loops of the small intestine, was loosened and an oval mass found. This was easily shelled out, and proved to be a firm blood coagulum. The broad ligament was then isolated and ligated close to the uterus and at the infundibulo pelvic ligament. The fruit sac was found in the same, having pushed the anterior blade forward and upward. The soft and shreddy top part of the sac was removed. After removal of the tube and ovary a spurting artery required an additional ligation. Gauze packing and drainage. It appears from the specimen that rupture into the folds of the broad ligament has taken place with bleeding on two different occasions: one is shown by the central dark part, and another later one is shown by the light-colored peripheral layer of the coagulum. The tube is small, and shows the inner one third dilated and forming part of the wall of the fruit sac. I wish to call attention to the difficulty of ascertaining whether there was a hæmatoma of the broad ligament or an unruptured tubal pregnancy, and to the fact that apparently rupture took place while the patient was being chloroformed, which shows that these extra-uterine pregnancies rupturing into the broad ligament are possibly not so safe to leave alone as it has been claimed.

A Case of Cæsarean Section, Successful for Mother and Child.

By JOSEPH B. DE LEE, M. D.

DISCUSSION.

Dr. C. S. BACON: There is nothing but favorable criticism to be made of the report of the case except the lack of data for a more accurate determination of the character of the pelvis. There is considerable difference of opinion as to the value of measurements, but their aid should not be entirely overlooked in a case of obliquely contracted pelvis. Among the measurements recommended by Nægele those of the distances between the posterior spines and the anterior spines of the opposite side, as well as the distances between the ischial tuberosities and the opposite posterior iliac spines, are the most important. The description that was given seems to point toward a Nægele pelvis. If it is a Nægele pelvis, it is interesting on account of the ætiology. A rachitic condition has no influence

in the production of a Naegele pelvis, and the question of inflammation of the sacro-iliac joint as a possible result of the fall comes into consideration. If it was a Naegele pelvis, with ankylosis of the sacro-iliac joint, then the question of symphyseotomy is entirely ruled out. Mobility of both sacro-iliac joints is a necessary condition of this operation. Consequently the choice of operation was such as every one must agree to. There being no infection, there is no question as to which operation should be done—the Porro or the conservative section. There are perhaps two points that might be discussed relative to the operation. One is removing the uterus from the abdominal cavity before emptying it. The contents of the uterus were not infected at all, and hence the removal of the uterus from the abdominal cavity was not indicated. When we have reason to fear that the contents of the uterus are infected then it should always be removed, so as to prevent, if possible, any of the contents getting into the abdominal cavity; but here it would seem possible to have opened the uterus and removed the child without taking the uterus out, and it would have made a somewhat easier operation. It is a question whether hæmorrhage, which may be somewhat profuse, can be as easily controlled with the uterus in the abdominal cavity, and I suspect that nearly every one who had not operated several times might be tempted to first remove the uterus before opening it, because of the better facility for controlling the hæmorrhage.

The next question is that of the elastic ligature. Saenger first, and later many others, have shown that the application of an elastic ligature certainly tends to an increased amount of hæmorrhage, and, where one has efficient assistants to control the uterus, the elastic ligature is not necessary and is liable to lead to trouble afterward.

The sewing up of the uterus, as well as the closure of the abdomen, was done well, as is proved by the result. The greater security promised by the method of sewing the uterus in four stages or rows of sutures, as proposed by Professor Senn, might well have been considered in this case, where a rapid ending of the operation was not called for.

I have only one word more to say, and that is in regard to the management of the lochia. It is curious how the lochia should have become offensive, because the vagina was first well cleansed and the entire placenta and membranes were removed. But so long

as it did become offensive, and there were no other symptoms, I think there is no question that Dr. De Lee did right in not doing anything further. His practice conforms to the rule which is now commonly adopted, that interference with the interior of the uterus in a case of simply bad-smelling lochia, where there are no other symptoms, is not indicated.

Dr. ETHERIDGE: I wonder why the medical profession does not take into serious consideration the removal of the ovaries as a classical part of the procedure of Cæsarean section in a woman like this, preventing any other conception. Here is a woman who is malformed, and sociologists will tell us that we are just turning her loose on the world to beget other perverts physically, and I would like to know why the idea should not be advanced and encouraged of complete oöphorectomy in these cases, or removal of the tubes at any rate, thus preventing her from conceiving in the future. I think the next case of Cæsarean section I have I shall seriously discuss that question with the mother and father before operation.

Dr. J. A. LYONS: I have little to say except to commend Dr. De Lee for the excellence of his paper and for the manner in which he prepared for and carried out the operation. It was indeed done in a masterly manner. Dr. Etheridge's suggestion calls to mind a case I had some years ago. I was called by the family on the 4th of July, because of an accident to the young lady's brother, and while there I noticed that one of the daughters had a deformed pelvis, and advised the mother either to have ovariectomy performed or not allow her child to marry. They thought over the matter for some time, and were considerably worried, but did nothing. In the course of two years the girl married, and almost immediately became pregnant. The deformity was so bad, however, that the foetus could not grow to any extent. The promontory of the sacrum came probably within an inch and a half of the pubes. The uterus in growing seemed to elongate entirely; the cervix at the time she miscarried, at about three and a half months, had lengthened out to two or three inches, and it was with very great difficulty that the foetus was removed at that time. However, we can not always figure on having such a difficult time in these cases. I was engaged some two months ago to confine a woman whom I thought was deformed about as badly as any one could be, and I was prepared for almost any procedure, especially as it was her first child. She had but one pain, and the child was delivered without trouble.

Dr. M. L. HARRIS: It seems to me the doctor has not presented sufficient reasons for selecting the more serious operation of Cæsarean section in preference to symphyseotomy in this case.

A conjugata vera of eight centimetres is supposed to come well within the limits of symphyseotomy, and the doctor states the question of it being a Naegele pelvis did not come up until measurements made some time after the birth. Of course, he could not consider the smallness of the vagina in a primipara as an indication for Cæsarean section.

The injurious effects of symphyseotomy on the sacro-iliac joints mentioned does not seem to be borne out by statistics. In a recent paper by Ayers on the after-effects of symphyseotomy in seventy-three American and Canadian cases, he has shown that no serious injury to the sacro-iliac joints or the symphysis occurs. From the evidence presented, I think a symphyseotomy would have been proper to consider in this case, as it should have the preference over a Cæsarean section when possible.

Dr. J. B. DE LEE (in closing): I am very much pleased at the tenor of the discussion, and will say in answer to Dr. Bacon about the shape of the pelvis that I have not as yet made a diagnosis as to the pathology of the pelvis, but I have a very clear conception as to the nature of the deformity. The pelvis is oval, almost triangular, and this can be caused by osteomalacia, by rickets, and by disease in the sacro-iliac joints, either congenital or acquired, the so-called Naegele pelvis. Which of these it is I do not know; both of them may be present. Kleinwächter showed a pelvis that was exquisitely rhachitic and also a Naegele pelvis. In regard to the operation itself, I confess the reason I rolled out the uterus was simply to make the operation easier. After I have had a little more experience in Cæsarean section I believe I will leave the uterus in the abdomen unless it is infected. However, I think in this case rolling the uterus out helped to stop the hæmorrhage, which was quite severe.

Regarding the use of the elastic ligature, I knew very well at the time the objections to it. I gave the uterus into the hands of my assistant to control, but he was new to the operation and did not successfully compress the lower uterine segment. The ligature was not in place more than a minute or two, as immediately after the child was delivered I unclamped the forceps and removed the ligature.

In answer to Dr. Etheridge's suggestion about ovariectomy in these cases, I certainly think it should be considered. This woman is deformed, and may produce deformed children, although this child presented all the signs of a well-developed healthy infant. Another point in performing ovariectomy and Cæsarean section: one does not like to increase the mortality of the operation, and anything that will take more time or involve the use of more ligatures will certainly raise the mortality somewhat.

In regard to performing symphyseotomy in preference to Cæsarean section, the last statistics to which I have had access show a mortality from symphyseotomy of ten to twelve per cent., while Cæsarean section performed in such favorable cases as mine gives a percentage of eight per cent. (Leopold), or even less.

I said a tight cervix and vagina are an objection to symphyseotomy and a point in favor of Cæsarean section. Edgar, of New York, says the danger of symphyseotomy lies as much in the soft parts as in the bony pelvis. The cervix, the vagina, and perinæum are likely to be torn by the rapid extraction, and, on the other hand, the child can be injured or will die during the extraction rendered difficult by the resistant soft parts.

Any one who has had to deliver a child rapidly through a tight vagina and unprepared perinæum knows how difficult an operation it is. I need only refer to a breech presentation in a young primipara.

A conjugata vera of eight centimetres is not an indication for Cæsarean section in a flat pelvis. Here one can usually deliver by version and extraction. But in a generally contracted pelvis a conjugata vera of eight centimetres and a half allows the Cæsarean operation. This is especially true when the pelvis is obliquely contracted, because the available conjugate is smaller still.

Regarding the integrity of the sacro-iliac joints, we have no way of determining their mobility. Results obtained by putting a finger in the rectum and then abducting the thighs, or having the patient stand first on one foot, then the other, as the Germans do, are entirely illusory. In all obliquely contracted pelvises we must suspect the integrity of these joints. I can show large numbers of obliquely contracted rhachitic pelvises with osteitis around the joints which would seriously cripple their mobility.

Official Transactions.

T. J. WATKINS, M. D.,
Editor of Society.

TRANSACTIONS OF THE BROOKLYN GYNÆCOLOGICAL
SOCIETY.

June 5, 1896.

The Symptoms and Diagnosis of Salpingitis.

BY L. GRANT BALDWIN, M.D.

(See page 581.)

ABSTRACT OF DISCUSSION.

Dr. A. J. C. SKENE: I shall express my gratification in the privilege of listening to this paper, because, although brief, it is valuable work in the right direction. We are a little below requirements in dealing with this subject, I think; at least, most of the gentlemen that I come in contact with acknowledge their inability to make an accurate diagnosis in cases of salpingitis—in many cases, at any rate. That is entirely my own experience, and I believe it is due entirely to the fact that we have not yet adopted the methods of investigation that can lead us to correct diagnosis. During the last few years we have fallen behind our brethren of the past in the way of obtaining and keeping accurate clinical histories and then comparing such history or histories with the pathological conditions obtained post mortem or in surgical operations. Now, I believe that if we did more work like this of Dr. Baldwin's—of keeping an accurate account, as he has done, of the clinical history of the patients, and then finding the pathological conditions which gave rise to those symptoms and physical signs—I believe that we may become far more expert and certain in our diagnosis than we are at the present time. I believe that to-day we can diagnose pneumonia and pleurisy with gratifying accuracy—and yet there was a time when we could not—as the gynæcologists do now in regard to the disease of the tubes and ovaries, and that it was only by observing the histories, symptoms, and physical signs, and then comparing those with the pathological conditions, that physicians have become so expert as they are now. And I believe that is the only way that we will ever solve the problem of the diagnosis of those cases—that is, in the way that Dr. Baldwin has been working.

Dr. JEWETT: I have nothing more important to add, Mr. President, than praise for the paper. The difficulties, as well as the possibilities, of diagnosis ought to be emphasized. It is impossible in many cases by any amount of skill to distinguish between pus in a tube, in an ovary, encysted in the peritonæum, and other swellings and tumors in the pelvis.

With regard to the permeability of pus tubes, it would seem plain enough that the lumen of the tube, normally too small for leakage at the uterine end, can not be made larger by inflammation. Yet we hear of passing a sound into a tube or squeezing pus from it. It is possible that with the tube at its full caliber or more a thin fluid may leak into the uterus, but it is absurd to think of draining a pus tube by this route. When the doctor finds a mass in the pelvis which grows smaller under pressure, or, examining at intervals, finds it sometimes swollen and sometimes gone, that is something else than a sacculated tube.

Dr. SKENE: Perhaps ovarian cyst, where the cyst increases or decreases very much sometimes.

Dr. CHASE: I have been interested in this paper because of the point of diagnosis. From my own observation, and from what I know of the observation of others, I think it is not an uncommon occurrence in exploratory laparotomies or laparotomies for specific purposes to find pus tubes which were not suspected. Certainly the rational signs in many cases as they come under our observation are entirely inadequate for the purpose of diagnosis, and in a woman who has never borne children, with thick abdominal walls in which the uterus is high up in the pelvic cavity, the difficulties of making a diagnosis by bimanual palpation are certainly great, and one may be left in doubt. So I believe that failure to make a diagnosis does not necessarily imply a lack of skill in diagnosis. The doctor has brought out in a graphic and interesting manner the possibility of diagnosis of rupture of a pus tube with that of extra-uterine gestation or tubal gestation.

Dr. J. W. HYDE: Mr. Chairman, I think that I am indebted more to Dr. Baldwin than any of the rest of you, because he very kindly offered to take my place and read a paper this evening, as I had expected to be out of town. It has been well said by an eminent gynecologist that there is nothing in the world so blind as abdominal surgery—you never can know accurately what conditions exist until you open the abdomen.

There is a degree of similarity of symptoms between salpingitis and ruptured tubal pregnancy. Salpingitis, like lacerated cervixes and many other things we have to contend with, come to us late. They have generally been in existence and annoying the patient for a long time, and sometimes they give a history of suffering before they come under the surgeon's care. Of course, later, the symptoms are more alarming, and they are brought in suffering with some unusual and urgent indications for interference. But in tubal pregnancy we are very apt to have one thing that predominates, and that is the shock and the suddenness of the attack, which we do not always get in salpingitis.

Dr. A. ROSS MATHESON: The history accompanying the exhibition of this specimen may very properly come in as a part of the discussion of the paper of this evening.

On April 22, 1896, I was called to see Mrs. C. B., aged thirty-three years, born in the United States; married eleven years. She was five feet one inch in height, and weighed one hundred and sixty pounds.

She had enjoyed excellent health, never having been confined to bed during her adult life, until her present illness.

She gave a history of sterility, and also menstrual irregularity extending over a long term of years, at times scant and delayed to the sixth and eighth week.

About March 1st, after an interval of six weeks, she began to flow; although it was at no time profuse, it continued until in the second week of April, when she consulted a female physician, who introduced a uterine sound and also used a cotton tampon. She again visited the physician on the 17th of April, and the same treatment was repeated; but it was followed by severe and constant pain and occasional rigors. On the 19th she was compelled to take to her bed.

It was late at night on the 22d when I saw her; she was flushed, and said that her pain was intense and that she had but little sleep during the three previous days and nights. I examined her abdomen, making slight palpation, which was resisted, owing to its extreme sensitiveness. Her temperature was 102.8° and pulse 108. The possibility of pregnancy suggested itself, and I inquired minutely without eliciting any evidence of any of the usual symptoms of pregnancy, the patient also assuring me that she had never been pregnant and never expected to be. That during this protracted

flow there had been no pain until the second introduction of the sound, and that the pain since then had been continuous and increasing in severity.

I administered morphine, and saw her again on the morning of the 23d; she had slept under the influence of the anodyne; her temperature was 103° . I made a vaginal examination: the canal was dry and hot, the os was firm, the uterus immovably fixed in a solid mass, pushing down into Douglas' pouch, filling the utero-vesical pouch and spaces between the uterus and the sides of the pelvis. The abdominal wall was thick, there being a layer of fully two inches of fat, which interfered somewhat with bimanual examination; nevertheless it was evident that there was a mass in the abdominal cavity extending upward to a line stretched from crest to crest of the ilium, and being a part of the mass in the pelvis. At no point, either vaginal or abdominal, did this mass give evidence of fluctuation or elasticity, simply resisting solidity. The slightest pressure produced excruciating pain, which was more marked in the right iliac fossa. I also examined through the rectum without gaining any additional information.

Any movement of the body was attended by severe pain in the back, extending as high as the dorsal region.

On the 26th the pain had modified so as to be easily controlled by codeine, and the afternoon temperature had subsided to 102° and the morning to 101.2° .

On the 30th the temperature had dropped to—afternoon, 101.6° ; morning, 101.2° .

Dr. George R. Fowler saw her on the evening of the 30th, and made a careful examination without arriving at any satisfactory conclusion.

Her temperature gradually fell, and on the 14th of May it was only 99° in the evening and 98° in the morning. She was cheerful and was anxious to sit up.

The tumor, however, had undergone no marked change, the slightest pressure over the abdomen caused great distress, and the tenderness which in the beginning was most marked in the right iliac fossa had changed to the left side.

On the morning of the 15th she was not feeling as well; temperature had gone up to 101° , and there was considerably more pain. Dr. A. J. C. Skene examined her and came to the conclusion, which I and Dr. Fowler had already reached, that it was a severe

pelvic peritonitis with abundant exudation, and with the subsidence of the active inflammatory conditions operative procedure would complete the history of the case.

I was called to see her again at 10 P. M.; her temperature was 103°; pulse, 160. She had rigors and a chill. Dr. Fowler met me again in consultation on the morning of the 16th. The condition of the patient had not materially changed since the previous night; the respiration and temperature were the same; pulse, 170. A careful examination did not reveal any new evidence pointing to the cause of the trouble. She died at 11.30 A. M.

An autopsy was performed about six hours after death by Dr. Carl Shoenijahn.

On opening the abdomen, a large quantity of clotted blood was found; the omentum, intestines, uterus, bladder, and, in one word, everything was bound in one mass by strong inflammatory products. After some difficulty we succeeded in separating the mass, and found that the left tube had contained a gestation sac which had ruptured, and the specimen which I now exhibit was found among the *débris*. It was about the eleventh week of gestation. The tubes and ovaries were so adherent to other organs that it was impossible to separate them without considerable laceration. The cavity of the uterus was not enlarged. Its walls were unusually thick, and it cut like a fibroid. It was empty, and did not contain a shred of decidua or other visible element.

Dr. SKENE: It is needless to say, Mr. President, that I am interested in this case, and I am very glad to hear the latter portion of the history, though sorry that it was completed in that way.

The condition found post mortem is about the only one that I did not suspect. I thought of every disease that I had ever known that would produce the physical conditions that I found when I saw her in consultation with our President, and I could not make her history fit in with the history of anything. I thought of extra-uterine pregnancy, but dismissed the idea at once without giving it any consideration, because I did not see anything that pointed to it; there had been no shock, and the physical signs were peculiar at the time that I saw her—in fact, the history was that of most anything except extra-uterine pregnancy. Of course, we all labored under some disadvantage. Had either of us seen the case at the time that she consulted this other physician, or while she was under the care of that physician, the distended tube would have been

found and disease of the tube suspected or of the ovary on that side, and then the subsequent inflammatory trouble would have suggested a rupture. In fact, I remember that at the time of our consultation, in hunting for a cause of the peritonitis, we concluded that as near as we could come to it either the uterus had been roughly handled, perhaps punctured by the use of the sound—which was a possible thing, and yet not very likely—or rupture of some neoplasm. I think that was mentioned or discussed, but I think we were less inclined to rely on extra-uterine pregnancy than anything. It is certainly one of those eccentric cases in its history that I think would puzzle the expert.

Dr. JEWETT: I have nothing to add, Mr. President. The case illustrates the occasional difficulty of diagnosis. At the time of the examination you were dealing with the results of inflammation, a condition which might have been the same under various causes. There was no possibility at the time of this examination of tracing the trouble back to its origin.

Dr. WILLIAM MADDREN: I would like to ask at what portion of the tube it ruptured or was situated, if you were able to tell.

Dr. MATHESON: We could not determine, because the mass was so blended together. It was some little distance from the uterus. There was no pus. The rupture was on the left side.

Dr. L. G. BALDWIN: Mr. President, I have very little to say, except to thank the members of the Society for their discussion.

Dr. Matheson's case certainly emphasizes my paper in more than one way. In the first place and principally, the difficulties of diagnosis. And then another thing, a point which I have several times spoken of and which has been spoken of in the discussion to-night, and that is the absence of shock in ruptured tubal pregnancy. I think I have had eight cases, and in only one of them has the patient experienced the shock that we look for in ruptured tubal pregnancy, and in some of them there was a very large loss of blood too. I should have been glad if the gentlemen had told me more about the diagnosis of salpingitis in the early stages, if there is anything more definite that can be got at.

In the matter of the tube draining through the uterus, of course I do not say that they *never* do. Perhaps a few have, which would only prove the assertion more positively that they seldom, if ever, do. But I think it is the rule—I have met it in talking with physicians very frequently—that it is supposed that they do drain that

way, and that they do so spontaneously, and I should like to have heard if the members of the Society had met with similar experiences when called in consultation in such cases.

Dr. Kortright spoke of the danger of rupture of a pus tube from digital examination. If the suppuration is confined to the tube, as a rule, I have been able to enucleate them and use a good deal of pressure to get them out. If an ovarian abscess or tubo-ovarian abscess, it is different; I don't think I ever enucleated an ovarian abscess without rupture. The two conditions are very different. Ovarian tissue is very friable, and is almost sure to rupture as you separate it from lower adhesions, whereas the tube is very strong, and will resist a considerable amount of pressure.

TRANSACTIONS OF THE NEW YORK OBSTETRICAL
SOCIETY.

Stated Meeting, October 6, 1896.

J. RIDDLE GOFFE, M. D., *Vice-President*, in the Chair.

Pregnancy following Anterior Colporrhaphy for Retroversion.

Dr. C. C. BARROWS presented, at the request of Dr. Polk, who was unable to be present, two of the latter's patients.

This case was operated upon by Dr. Polk on October 10th last. She had a retroverted uterus without adhesions. He opened the anterior *cul-de-sac* and shortened the round ligaments, lifting the uterus, but not attaching the round ligaments to the vagina or fixing the uterus into the vaginal incision in any way. The vaginal incision was closed. The woman is now eight months pregnant, having gone through her pregnancy without difficulty, and the uterus occupies a normal position, the os presenting as it should, and not being thrown backward at all. The woman had borne children before, and had an ordinary, natural delivery. The one advantage that Dr. Barrows could see that this operation had over an ordinary Alexander's would be in case one desired to examine the tubes and ovaries to see their condition; or in case they were

apparently diseased, this operation would afford him that opportunity, and also the very slight advantage of leaving no scar on the outside.

DISCUSSION.

The CHAIRMAN appointed Drs. Jewett, Dudley, and Vineberg a committee to examine the patient.

Dr. Barrows was asked what was the method in shortening the round ligament, and he replied that it was simply seized, the loop was brought down, and one or two sutures put around it so as to shut off the loop. Particular care was taken in this case not to fix the uterus to the vaginal wall in any way, simply to leave it perfectly movable and free, so that there was in no way a vaginal fixation of the uterus, such as in Dr. Vineberg's or Mackenrodt's operation.

In answer to the question as to whether he would prefer to do this operation as simpler than Alexander's, Dr. Barrows replied that he was only presenting the case for Dr. Polk, and personally he preferred Alexander's operation to any with which he had any experience for retrodisplacements of the uterus. This was also Dr. Polk's practice in uncomplicated retrodisplacements, the present operation being offered only as a substitute for ventral or vaginal fixation.

Dr. GEORGE W. JARMAN said he would ask the gentlemen who examined the case whether they noticed any condition of the scar in the vagina which would in any way interfere with the labor to take place a month hence. It was a point of a good deal of interest to him, inasmuch as there had been some reports of cases of operations on the vagina, afterward followed by pregnancy, where the tissues failed to dilate as they should do, and rupture took place. It was also of special interest to him because he had a patient shortly to be confined where he opened not only in front but through Douglas' *cul-de-sac*, and the serious question is as to what is to happen to the scar. He is certain the vagina is not as loose as it is ordinarily at this time previous to confinement.

Dr. A. PALMER DUDLEY said that he thought the answer would be favorable, so far as the condition of the scar in this patient was concerned. She was evidently pregnant in a normal manner in every way. The scar was apparent, but was perfectly soft, and there was no scar tissue that would act in any way as an element to retard a

proper delivery. The vagina had healed nicely; there was simply the indentation showing the line of union, and the cervix seemed to be in a proper position for a woman so far advanced. The scar was transverse, but perfectly soft from one end to the other. He would say further that in process of delivery the scar was so situated that it would form a fold, and there would be but very little traction upon it; it would be the fold of the bladder wall and cervix when the child's head was delivered.

Dr. H. N. VINEBERG said that there was no evidence that the scar would be a hindrance in delivery, and he would say from experience he had had in five cases where there was even more of a scar that there was absolutely no disturbance whatever, and in the cases reported there had been no trouble from the scar in the vagina itself, but from the fundus uteri being too firmly and extensively united to the wall of the vagina. He considered the case an excellent illustration of the good result of the operation.

Dr. CHARLES JEWETT said he thought the case was in the seventh month. The uterus was in normal position. He could not detect any cicatrix whatever in the vagina, or any brawny feel of the utero-sacral ligaments; everything was perfectly normal.

Posterior Colporrhaphy for Retroversion.

Dr. BARROWS presented a second case for Dr. Polk, where the woman was operated upon August 1st for the same condition and the round ligaments were shortened in front of the uterus in the same way, and the utero-sacral ligaments were also shortened through a posterior incision. The woman's uterus was in excellent condition, and there seemed to be a good result.

Dr. JEWETT, having examined the patient in the second case, stated that he found the uterus anteflexed, retroposed, and considerable cicatricial tissue behind the cervix.

DISCUSSION.

Dr. P. F. CHAMBERS, after examination of the patient, agreed with Dr. Broun; he thought the uterus was on a low plane; he found scar tissue in the vagina, but not in the utero-sacral ligaments.

Dr. H. T. HANKS stated that he found the uterus almost in the second degree of retroversion; the promontory of the sacrum was

above the fundus. There was some cicatricial tissue around the utero-sacral ligament, but none in front.

Dr. VINEBERG stated that he had been very much interested in this matter, and had been tempted to change his technique for the one given by the doctor to-night, as he thought with an equally good result there would be less likelihood of trouble in pregnancy than when you fixated the round ligaments, as in his method. But the second case was a disappointment. He would not consider, if it was his own, that it was a successful result anatomically. He would certainly expect to find the uterus in better position forward. He had done ten cases in which he had fixed the round ligaments about an inch from their insertion into the fundus to the vaginal wall. In one case pregnancy had occurred, and the woman was in her fourth month without disturbance. If he could satisfy himself that the result would be as good with simply shortening the round ligaments rather than fastening them, he would modify his technique to that extent.

Dr. H. L. COLLYER said he thought the operation was only applicable to properly selected cases—namely, where the ligaments were very much relaxed, so as to give an opportunity to get sufficient slack to double it on itself, making three layers. The objections he would offer to the manner in which those ligaments were held together was that the operator was very apt to tie a ligature around a mass of that sort too tightly; it would hold at the time of the operation, but it would stop all circulation, or would separate the ligament in a short time. It would be more permanent if a stitch were so inserted as not to constrict the caliber of the round ligament. There were dangers of mistaking the ligament, with which everybody was familiar, but he thought the operation would meet with very good results in properly selected cases.

The CHAIRMAN asked the doctor whether he was speaking from his own experience as to the sloughing-off process.

Dr. COLLYER replied that he was speaking from what he had observed, and criticising the operation from that standpoint.

Dr. BARROWS said there was a point in regard to the second case which deserved attention. The gentlemen who examined the case found more or less cicatricial tissue in the posterior fornix of the vagina and the utero-sacral ligaments. None found any cicatricial tissue in the first case. One reason, he thought, was the difference in time that had elapsed since the operations. The second operation

was done on the 1st of August last, and in all probability the amount of cicatricial tissue would disappear in a few months. The other woman was operated on a year ago.

The CHAIRMAN: The influence of the pregnancy, also, in the first case would have some effect.

Report on a Case of Double Vagina.

Dr. DUDLEY said that he desired to report further, as he had promised to do, on a case of double vagina which came into his hands early in the season, where he found pregnancy existing, and believed the woman had also a double uterus. She ceased to menstruate in December, and came to him to ascertain whether she was pregnant. He made an examination, and passed his finger over an unruptured hymen. He could not understand such a condition to exist complicated by pregnancy, and began to question the patient, and on the second attempt passed his finger over a ruptured hymen and into a voluminous vagina. On the third examination he passed one finger over an unruptured hymen and the other into a voluminous vagina, with a septum a quarter of an inch thick between his two fingers, and without a pinhole communication between the two vaginæ and the two cervixes. She was then four months pregnant, and, fearing to let her go with that condition until she should deliver, expecting that confinement with such a septum would result in a tear into the bladder or rectum or pelvic tissue, he dissected out the entire septum with good results. Early yesterday morning he was called to the case, and before he got to the house she had delivered herself without assistance, another physician hastily summoned having arrived about ten minutes after delivery. The delivery was normal so far as was known, but, upon examination instituted as soon as possible, the speaker found the left uterus had evidently delivered the child, and that the abdomen contained not only the contracted left uterus, but the right uterus, about twice as large as a lamp chimney. It was up above the navel, occupying the right side. The other physician declared that the placenta was delivered intact. The child had ruptured the left uterus into the vaginal juncture, and there was a tear about four inches long. The tear had also extended across about two inches up on the right cervix, showing that if he had let the septum remain the danger would have been great. He found the vagina occupied by what seemed to be a piece

of placenta, and, as he drew it away, he found he drew away a miniature placenta from the right cervix, the other having come away intact. He cleansed the parts very thoroughly, and sewed up both the left uterus and the right; also closed the perinæum and put the patient to bed. Her temperature was under a hundred, but she had considerable of what she called "motion" on the right side, evidently in the right uterus.

DISCUSSION.

Dr. JEWETT inquired whether he understood Dr. Dudley to say that a placenta was discovered in the non-gravid half of the uterus.

Dr. DUDLEY: Apparently; he searched for it, but the servants carried it out at once and it was lost. It was not decidual membrane; it was placental tissue, with the foetal structures, and had a small piece of cord attached to it.

Dr. BACHE EMMET said it seemed to be the feeling that with an abnormality of that kind we should interfere and perform an operation for the purpose apparently of making a better canal for the subsequent parturition. He thought it must be upheld, by what had been seen in this case, that labor usually proceeded in the ordinary way, and the septum did not form any hindrance. The usual softening which took place in all the genital canals took place in the septum as well, and the parts, if left to themselves, might be in a perfectly soft and yielding state.

Dr. HANKS stated that accidents did occur where there was a septum in the vagina. Several years ago he was called in consultation by our treasurer, Dr. Morrill, to a case of this kind. The child had been born before the doctor had arrived. On careful examination, it was found that there was a double uterus and a septum in the median portion of the vagina. This septum had been completely ruptured for its full length, and it required considerable time to trim up the rough edges and check the hæmorrhage.

Dr. VINEBERG said that he had a case of double uterus recently under observation in which the patient came to him after having her fifth or sixth child. As he remembered, the previous children had been born in the right uterus, but there was a tongue of tissue in the median line of the vaginal wall which he supposed was a septum that had been torn at the first labor. It gave rise to no trouble to the woman, and did not necessitate any operative interference. The last time she became pregnant it was in the uterus on the left side,

and the physician who delivered her said she had a perfectly normal labor.

Dr. E. E. TULL inquired how the second placenta existed unless there was a double pregnancy, as suggested; and if that was the case, and there was no other foetus found, was it not a proper thing to explore the other uterus?

Dr. DUDLEY, replying to the remark of Dr. Emmet, said that, if he could have been certain that the woman had two distinct uteri, he would hardly have subjected her to the removal of the septum, feeling that with one uterus containing a foetus the other would have been pressed to one side, and she would probably have delivered without a tear of the septum. But he feared that instead of this condition he was confronted with a double cervix and a single uterus. If so, as the woman delivered the child's head the two cervices would have been pressed into one, and the partition between the two, together with the septum, would necessarily have been torn, because the child's head would distend one portion of the cervix as well as the other. To answer Dr. Tull's question, he did not yet know that there were two distinct uteri; he did not know but that there was a double cervix and a branched condition of the uterus, and that a portion of this placenta grew into the opposite side. There was no scar tissue following the operation, and the tear on the perinæum was of minor importance.

Dr. E. A. TUCKER inquired whether there was any cord attached to the small placenta that would distinguish it as a separate placenta.

Dr. DUDLEY said there was a rudimentary cord, and that the placenta was true placental tissue; but he did not see the first and major placenta that was removed, because the neighbor who assisted had destroyed it before he got there.

Three Cases of Symphyseotomy.

Dr. CHARLES JEWETT reported three recent symphyseotomies, his third, fourth, and fifth operations, as follows:

CASE III.—N. O., Irish, aged twenty-eight years, II-para, admitted to the Long Island College Hospital January, 1896. In her first confinement she was delivered in my service after an easy labor, the child weighing six pounds. The pelvic measurements were as follows: Interspinal, 23.5 centimetres (nine inches and a quarter);

intercristal, 26.1 centimetres (ten inches and a quarter); external conjugate, 17.3 centimetres (seven inches); diagonal conjugate, 10.2 centimetres (four inches). The woman fell in labor at term, April 11, 1896. The presentation was primarily a right scapulo-anterior, but was subsequently reduced to vertex by manual interference. At the close of the first stage axis-traction forceps was applied tentatively, but the head could not be brought into the brim. The pubic joint was divided as follows: An incision beginning well above the level of the pubic bones was carried down over the joint to the clitoris, exposing the prepubic fibrous structures. The abdominal wall was opened to the extent of an inch or more above the symphysis in the median line. A V-shaped incision parallel with the crura of the clitoris, and immediately above them, was then made down to the bone dividing the suspensory ligament. With a strong, sharp double hook, caught in the angle of the V, the clitoris was drawn down below the summit of the subpubic arch. A few touches of the scalpel exposed the lower end of the symphysis. An improvised sharply curved director was passed behind the symphysis close to the interpubic disk, pushing back the retropubic vessels. The joint was divided with a blunt-pointed bistoury passed on the director, and the bones separated two inches and a half.

There was some hæmorrhage from the prepubic incision, but none from the veins behind and below the joint, and no other complication. The delivery was effected with the axis-traction forceps. The wound was sutured with silkworm gut, the sutures passing through the fibrous structures in front of the joint. The pelvis was immobilized by means of the usual adhesive straps and muslin binder. In addition to this, a firm hair pillow was placed under each lateral half of the pelvis. On these lateral supports the pelvis rested during the entire period of convalescence. The temperature did not exceed the usual normal puerperal limit. Slight suppuration occurred at one point to the depth of the skin, but, with that exception, the wound united promptly throughout. The woman left her bed at the end of four weeks with good union of the joint.

The child, a male, weighed nine pounds and three quarters. Its biparietal diameter was four inches, the suboccipito-bregmatic four inches and a quarter, and the corresponding circumference fourteen inches. The anterior fontanelle was small, and the cranial bones firmly ossified. At the last report received from the mother the child was living and well.

CASE IV.—Mrs. H., an Englishwoman, aged twenty-five years; II-para. First labor terminated by craniotomy. Pelvis ample except at outlet. Interspinal diameter, 25.4 centimetres (ten inches); intercrystal, 26.7 centimetres (ten inches and a half); external conjugate, 20 centimetres (seven inches and seven eighths); diagonal conjugate, 12.7 centimetres (five inches); the bis-ischial diameter was 8.2 centimetres (three inches and a quarter). The child presented by the breech. June 17th, several days before the expected date of confinement, labor was induced by the use of intra-uterine bougies and a cervical tamponade of gauze. On the following day dilatation, which was well under way, was completed manually. The symphysis was then divided by the same method as in the preceding case, and the bones separated to the extent of two inches and three quarters.

Up to this time there was no hæmorrhage from the retropubic veins. The child was readily extracted by the feet. The delivery was necessarily rapid. The assistants who were intrusted with the duty of supporting the lateral halves of the pelvis were inexperienced, and the bones were permitted to spring widely apart as the head came down. The anterior soft parts were completely torn through, the laceration running along immediately to the right of the urethra and extending into the base of the bladder. There was considerable bleeding from the torn structures. The bladder wall was closed with a running suture of fine catgut, and the vaginal wall in a similar manner. The incision was united with silkworm-gut sutures, which included the prepubic fibrous structures. A soft catheter was left in the bladder for three days. The patient suffered considerable shock, but made a perfect recovery. The incision healed without suppuration. The sutures were removed on the seventeenth day. The woman was out of bed at the end of a month, and was soon after able to walk without pain or inconvenience. Restoration of the joint was apparently complete. A urinary fistula persisted for nearly four weeks, but had wholly closed at the time the patient left her bed.

The child is living and in robust health. Five days after birth its weight was seven pounds and three quarters. The birth weight was not taken, but must have exceeded eight pounds. The biparietal diameter was four inches. The suboccipito-bregmatic circumference was thirteen inches, the occipito-frontal fourteen inches.

CASE V.—M. K., an Austrian woman, aged thirty-one years, V-para, admitted to the Long Island College Hospital July 27, 1896. Previous labors difficult; all the children lost. General health good. Presentation vertex, left occipito-anterior. Perinæum torn to mucous membrane of rectum. Rectocele and cystocele. Interspinal diameter, 25.4 centimetres (ten inches); intercrystal, 28 centimetres (eleven inches); external conjugate, 18 centimetres (seven inches and a quarter); diagonal conjugate, 10.8 centimetres (four inches and a quarter). Labor began at term, September 3, 1896. Twenty-nine hours later, the pains for several hours having been of the most vigorous description, the head was found arrested at the brim in transverse position, with the occiput to the left. Foetal heart fairly strong. Symphyseotomy was decided on, and was performed as in the foregoing cases. The symphysis was to the right of the median line. Having no suitable director at hand, the joint was divided with the blunt-pointed bistoury, guided by the finger in the retropubic space. Free bleeding, controlled by gauze packing. Separation of pubic bones about two inches. Child easily extracted with forceps in a condition of partial asphyxia.

The wound, which was closed with a single row of silkworm-gut sutures, healed *per primam*. Temperature scarcely above the normal throughout. The coaptation of the bones was maintained as in the preceding cases. The use of the catheter was at no time required. The sutures were removed September 15th, and the patient was out of bed October 1st. Satisfactory union of the joint was obtained, and the pelvic organs were in as good condition as before operation. In this, as in most cases that I have examined within a few weeks after symphyseotomy, there was a barely perceptible motion of the pubic bones on each other when the patient stood and rocked the body, putting her weight first on one foot, then on the other. The woman, however, was wholly unconscious of any defect in the joint, and she walked without difficulty on the third day after getting out of bed. Some relaxation of the symphysis may be demonstrated after labor in many women delivered without symphyseotomy. The child weighed seven pounds and three quarters, and measured twenty inches in length. Directly after birth the head measurements were as follows: Biparietal, $3\frac{1}{2}$; bi-temporal, $3\frac{1}{2}$; suboccipito-bregmatic, $4\frac{1}{4}$; occipito-mental, $5\frac{1}{4}$. A few days after birth a superficial skin slough over the left parietal bone marked the point where the head had rested against the

promontory. At the date of this report the child weighed nine pounds and three quarters, and is thriving.

DISCUSSION.

Dr. BACHE EMMET inquired whether, after having performed symphyseotomy, it would not be desirable to retard the delivery so as to bring the parts to the same dilatation as would occur naturally, and thus spare the injury which took place by the extraction of the head before the parts were made to yield at all. He would like to know whether any injury would follow by making the extraction slowly, instead of drawing through with possible haste.

Dr. JEWETT replied that the general opinion was in favor of delivering promptly. He thought it was better to deliver by the forceps, as a rule; the danger of injury to the soft parts was less by this means than by version. With reference to the dilatation of the parts, that should be provided beforehand. The cervix should be fully dilated, and so should the vagina. In case of anticipated difficulty at the introitus, episiotomy cuts might be made on either side to take the strain off the anterior soft parts. Injury of the kind reported, he thought, might be prevented by some apparatus to hold the lateral halves of the pelvis more securely during delivery than was possible manually. The French had an instrument for the purpose. Many such accidents had no doubt occurred; they were spoken of by all writers as very liable to happen, and he was surprised that it could so easily take place as in his case. The tear might come from the strain on the perineal fascia by the separation of the bones, and not necessarily by the pressure of the child. A breech extraction increased the risk of laceration, since the delivery must be rapid and considerable manipulation was required within the passages.

Dr. DUDLEY, at the request of the President, gave a most interesting description of the International Gynæcological Congress at Geneva, and, alluding to Dr. Jewett's cases of symphyseotomy, said that he had discussed the subject with Dr. Morrisini, who was very decided about repeating operations. The speaker had narrated the case reported by him in the spring, where he had such difficulty in delivering the child after having made symphyseotomy, and asked Dr. Morrisini whether he would do a second symphyseotomy in such cases. The reply was that he would, by making an open incision, wiring the bones together after delivery. As to whether he would

repeat symphyseotomy in preference to Cæsarean section or Porro's operation, or delivering a dead foetus, Morrisini said that he would.

Dr. SAVAGE, special correspondent of the *Medical Record* at the Geneva Congress, then gave a detailed account of his experiences and impressions there, which was listened to with great interest.

Official Transactions.

ARTHUR M. JACOBUS, *Recording Secretary*.

OBSTETRICS.

MEXICO.

Viburnum Prunifolium as a Prophylactic against Abortion.

MANUEL GUTIERREZ (*Gaceta Medica de Mexico*, May 1, 1896), without deprecating the value of pathological indications in the prevention of abortion, asserts that, whatever be the occasional cause of abortion, the essential condition is the contractility of the uterus; hence in preventable cases a remedy must be used which will abolish uterine contractions with the least general systemic disturbance. *Viburnum prunifolium* has, in his experience, fulfilled this indication, being a true uterine sedative. He employs the fluid extract in doses of twenty drops, three times a day, when no active symptoms exist; when uterine contractions are present it can be repeated as often as need be, combined with tinct. opii or morphine. He reports ten cases with complications successfully treated with *viburnum prunifolium*—two with uterine fibroids; two with prolapsus uteri; four with retroversion; one habitual abortion from excessive hard work; and one from tuberculosis.

SWEDEN.

Post Conceptional Syphilitic Infection toward the End of Pregnancy.

EDWARD WELANDER, of Stockholm (*Nordiskt Medicinskt Arkiv*, March, 1896), reports the case of a child delivered at full term apparently perfectly healthy, in whom three days later coryza appeared and persisted; five weeks after birth an eruption appeared about the mouth and nose, which increased daily, spreading to the fore-

head, arms, palms of the hands, and soles of the feet; the eruption was clearly syphilitic papules. Acute pulmonary catarrh developed, and the child died at the end of its sixth week. An autopsy showed lobular pneumonia of the right lung, with œdema of the opposite lung. The liver was large and harder than normal, the spleen large and spongy, with perisplenitis. Kidneys hyperæmic. There were no changes in the bones in the zones of ossification. The mother had always been healthy; no history of syphilis; had four children by a former husband. The father of the child indulged in illegitimate intercourse some ten weeks before the birth of the child, and continued sexual relations with his gravid wife. Two weeks later he noticed a small sore on his penis, but thought it due to psoriasis, from which he had suffered for years. No eruption was noticed. The mother just before confinement felt a burning sensation of the vulva, and discovered a sore spot, but noticed no eruption. The writer was consulted for the eruption upon the child when it was five weeks old, as before stated; he also found a syphilitic eruption upon the mother, which appeared to be recent, and a scar on her vulva. An eruption appeared upon the father the next day—a scar was found on his penis. There is little doubt in the mind of the writer that the infection of the mother was late in her pregnancy, and that the child was infected *in utero*. He believes that constitutional infection may infect the child by means of slight pathological changes occurring in the placental blood-vessels, as hæmorrhagic necrosis of the endothelium, which will permit the transmission of the specific microbes to the foetal circulation, which could not occur were the placental vessels healthy. Another theory—that of Dühring—is that during labor small fissures may occur in the placenta, and infection take place from the maternal blood through these traumatisms into the foetal circulation. Admitting the above theories as possible, the earlier mercurial treatment is begun the better for the child; for if the specific microbes can be transmitted the mercury can also be carried by the circulation, and the microbic infection modified at least before birth. In this particular case reported he believes that had vigorous mercurial treatment of the mother been instituted as soon as the initial lesions appeared, much might have been accomplished. The pathological changes supposed to occur in the placental vessels might have been averted, and the child saved from infection. Accepting Dühring's theory of infection through accidents of labor affecting the placental

vessels, early mercurial treatment would reduce the infecting power of the maternal blood.

FRANCE.

Three Cases of Death and Retention of Fœtus in a Retroflexed Uterus.

Drs. CHALEIX and G. FIEUX, of Bordeaux (*Jour. de méd. de Bordeaux*), report three cases of retained dead fœtuses in retroflexed uteri.

Case I was that of a feeble woman, aged thirty-two years, who, on examination during the third month of pregnancy, showed a retroflexed pregnant uterus with a hard cervix. During the fourth month she bled for three days, and then expelled some clots; after this the breasts showed a small amount of milk, which subsided in a few days, and the breasts rapidly decreased in size. During the following six months she menstruated regularly but scantily, and suffered constant general discomfort; she was then attacked with violent pain in her abdomen, like colic. On examination, the cervix was found to be hard, and the uterus the same that it was eight months before, and markedly retroflexed. A few days later, with a single pain, she expelled an ovum about three months old, of a greenish color, which must have been retained eight months after the death of the fœtus.

Case II was that of a woman of good general health, thirty years of age, but a sufferer from an adherent retroflexed uterus, who became pregnant about the end of September, 1894. She began to complain on November 30th of hypogastric pain, and lost a small amount of blood. These symptoms subsided with rest and anodynes. On examination, February 11, 1895, the cervix was found to be hard, the uterus retroflexed, and not apparently enlarged; it was thought that she had probably aborted the November previous. The next day she expelled without pain and with slight hæmorrhage a small ovum intact, containing an embryo between six and seven weeks of age, which must have been retained about three months after its death.

Case III was that of a woman, twenty-five years of age, admitted to the hospital, December 1, 1894, with violent abdominal pains. Her last menstruation occurred October 5th; she denied all possibility of pregnancy. On examination, the uterus was found to be retroflexed, adherent, and much enlarged; the cervix was hard.

The uterus increased in size up to the 1st of January, 1895. Her pains then gradually subsided.

On February 14th she expelled an ovum containing a macerated foetus eight centimetres long, the death of which appeared to have occurred one month previous. The first case just reported, after correction of the uterine displacement, became again pregnant, and has carried the child to the seventh month thus far without discomfort.

The writer advances the theory that in extreme retroflexion, with a sharp angle of flexion at the cervical junction, geniculation of the uterine arteries occurs, also that geniculation and compression of the utero-ovarian arteries takes place at the sharp border of the broad ligaments, both of which lead to the death of the foetus by diminishing blood supply to the uterus.

DENMARK.

Confinement Three Years after Symphyseotomy.

TH. B. HANSEN, of Copenhagen (*Hospitalstidende*, June 17, 1895), gives the history of a woman, aged thirty-three years, who at her first confinement was delivered with great difficulty of a dead foetus, which had presented transversely. Her pelvic measurements were: Cr. il., 27 centimetres; sp. il., 25 centimetres; conj. diag., 10 centimetres; conj. vera, 8 centimetres. In her second confinement, three years later, the head presented at the pelvic brim, but did not engage; notwithstanding strong labor pains, the writer decided upon symphyseotomy, which was done under chloroform narcosis. After the division of the symphysis, pressure upon the fundus uteri forced the head into the pelvis, which was extracted by the forceps with ease. The symphysis separated to the extent of six centimetres; the child was alive and weighed 3,500 grammes; circumference of head, thirty-six centimetres. The wound was sutured and a firm pelvic bandage applied; good union was secured, the woman being able to attend to her daily labors without discomfort. Two years after this she aborted during the third month of pregnancy, but disregarded all care or treatment; continued to work hard every day. Three years from the symphyseotomy she presented herself again to the writer, advanced in pregnancy. Her health was good and her gait natural; she continued to work hard all day. The pelvic measurements were the same; the ends of the pubic bones would

admit the little finger between them; there was marked motion to the ends of the bones when walking, but no discomfort or disturbance of gait. Three weeks after this examination labor began; the writer was not called until late, as a midwife was in attendance. On arrival, he found a shoulder presenting, which was crowded down into the pelvis; the umbilical cord was compressed and pulseless. Version was done and extraction accomplished with ease. After delivery the pelvic bones were found to be separated about four centimetres. The dead foetus weighed 3,250 grammes; circumference of head, thirty-four centimetres. A firm pelvic bandage was applied, and the woman was able to walk over a quarter of a mile five weeks afterward without discomfort or disturbance of gait. The bones were separated about one centimetre. The chief point of interest about the case is the increase of pelvic room permanently secured by the symphyseotomy without impairment of gait or discomfort. This fact was noted by Sigault, in 1778, in reply to the severe criticisms of Baudelocque upon his first symphyseotomy. Woyer (*Centralbl. für Gyn.*, No. 4, 1896) reports a case of symphyseotomy in a rhachitic pelvis, the measurements of which were: Sp. il., 27 centimetres; cr. il., 27 centimetres; conj. diag., 10.5. The bones were sutured with silver wire. Two years later the same woman gave birth naturally to a child. The pelvic measurements were then found to be normal—viz., sp. il., 27.5 centimetres; cr. il., 29.5 centimetres; conj. diag., 11.8 centimetres. This change is inexplicable.

IRELAND.

Ruptured Tubal Pregnancy, with Hæmatosalpinx of the Opposite Side.

ALFRED J. SMITH (*Dublin Jour. of the Med. Sciences*, April, 1896) reports the case of a woman aged thirty-three years, the mother of four children, the youngest being two years and a half old. Her menstruation had been regular for the past year, her last period being accompanied by severe pain in the lower part of the abdomen. This subsided in a few days; the flow returned in two weeks without pain. On admission to St. Vincent's Hospital, an examination was made under ether. The uterus was found to be anteverted, but not enlarged. A cystic tumor was felt in Douglas' pouch, which was very movable. The case was considered to be that of tubal pregnancy. On abdominal section, a cyst was found on the right side

bound down by adhesions; on tearing these, the fingers entered a cavity filled with dark, tarry blood clots, which escaped into the pelvis. The vessels were ligated and the sac and tube removed, the pelvis washed out with a warm saline solution. No fœtus was found. A similar cyst was found on the left side, which ruptured during removal. It contained dark, thin blood; no clots. The abdomen was cleansed and a drainage-tube inserted. The patient made a good recovery. Microscopical examination of the tubes showed the right tube to be a tubal pregnancy, and the left tube a hæmatosalpinx.

BELGIUM.

Aborted Tubal Gestation.

THIBAUT (*Bull. de la Soc. Belgr. de Gyne. et d'Obstet.*, No. 3, 1896) reports in the clinic of Mr. Jacobs the case of a nullipara, aged twenty-six years, who for two years previous had suffered from bilateral pelvic pain and dysmenorrhœa. She had been regular in menstruation up to about eight weeks before admission to clinic; since then metrorrhagia had persisted. On examination, the cervix was found to be slightly enlarged. In the anterior *cul-de-sac* a soft, painful tumor was felt the size of a pigeon's egg. The left appendages were enlarged to the size of a small orange, and the ovary cystic. The right oviduct was hard and tender, somewhat enlarged, and ovary cystic. Diagnosis: Tumor of the left appendages and ovaro-salpingitis on the right. Mr. Jacobs performed posterior elytrotomy, and confirmed the diagnosis. Hysterectomy was done with ease; a large quantity of blood clots were removed. The appendages were removed with difficulty, owing to adhesions. The right tube was adherent to the pelvis; it contained a large amount of ambiguous liquid; the ovary was cystic. The left tube was also adherent; its outer third was dilated to a tumor the size of a pigeon's egg, and of a green-brown color; the outer extremity was fringed, and a pocket found that probably contained the blood clots that had escaped. The tumor felt on examination in the anterior *cul-de-sac* was gone; it was probably a blood clot. The tumor in the right tube on section revealed a clot the size of a walnut, and, on microscopical examination, chorionic villi surrounded by decidual cells was found, so that the case was probably one of aborted tubal gestation ingrafted upon a diseased organ.

(T. W. CLEVELAND, New York.)

THE STATUS OF GYNÆCOLOGY ABROAD.

GREAT BRITAIN.

Recent Developments of Gynæcological Surgery.

Dr. J. H. CROOM (*British Medical Journal*, August 1, 1896), in an address delivered at the opening of the Section of Obstetrics and Gynæcology of the British Medical Association, says: In no department of medicine have advances been more rapid and in none have the results been so brilliant as in gynæcology. During the last few years men have turned their minds with fresh ardor to dealing with the direst of woman's foes—namely, uterine cancer. When we consider the increasing prevalence of the disease, and its short course and inevitable termination, it is not to be wondered at that the surgical treatment of it has always received the careful attention of the gynæcologists, and during the last decade has come into special prominence.

If the disease is recognized early enough, it can be dealt with thoroughly, be removed sometimes permanently—at all events, so as very materially to prolong life. Vaginal hysterectomy is an old operation, dating as far back as 1822, and, indeed, in the earlier part of the century, the treatment of cancer received great attention. Sepsis and hæmorrhage are, of course, the main risks. With scrupulous antiseptic precautions and a free drain the former is reduced to a minimum, and, with the use of the clamp, the latter is not a very serious anxiety. With this operation so perfected, what is its field? Looking at the prevalence of cancer, one would say that it was an extensive one; and, judging by the records of various German surgeons, one would arrive at the conclusion that the field is not only a very large one, but that the immediate and, what is more to the point, the remote results are eminently satisfactory.

Is this really so? For vaginal hysterectomy to be successful, mobility of the uterus, freedom of the fornices, and, as a result, the possibility of pulling the cervix well down to the vulva, are the essential points. Without these conditions the operation can, of course, be performed, but whether it relieves suffering or prolongs life is questionable. The expectancy of life of a patient with cancer of the cervix is two years, sometimes even longer, and, unless one

can by operation offer extension of life, it is worthless, because the relief from discharge and hæmorrhage is only temporary, for the disease soon returns to affect peritonæum, bladder, and rectum; and it is very questionable if death is averted any longer than when the disease is allowed to take its natural course. All partial and incomplete operations are practically useless. Of the many cases of cancer seen by the author, it is surprising to note how few of them conform to the requirements likely to make the operation of permanent value. The rarity of suitable cases is easily accounted for. Malignant disease of the uterus often attacks strong and apparently healthy women, and it is not until the body begins to fail from the continuous drain of blood and serum from the diseased organ that the sufferer applies for relief, and by that time the disease is so far advanced that surgical interference is impossible. A responsibility rests with the physician to recognize as early as possible the malignant nature of the disease, and thereby give the patient her only chance. The lesions which are likely to be mistaken for malignant disease of the body and cervix are senile uterine catarrh and chronic cervical catarrh. In some cases it is difficult to arrive at a correct diagnosis.

Vaginal hysterectomy for puerperal sepsis and puerperal thrombosis is a proceeding that but seldom can be reasonably advised, for three reasons:

1. That in acute septicæmia the onset is so sudden and the general systemic infection so rapid that no purely local measures are of any avail.
2. In those cases where the absorption from septic foci is slow, satisfactory results may be obtained by antiseptic irrigation or by curettage.
3. The conditions under which puerperal hysterectomy is undertaken must always be unfavorable, since the woman is exhausted by labor and sepsis.

To sum up the author's views in regard to vaginal hysterectomy:

1. Vaginal hysterectomy offers the very best and practically the only chance of cure in cases of cervical cancer, corporeal cancer, and sarcoma.
2. The operation must be performed sufficiently early and under the conditions already referred to.
3. If these do not exist, the patient, in my opinion, is best left alone.

4. In some cases of septic disease of the uterine appendages hysterectomy is often the safest course to pursue.

5. The author is disposed to think that the field for vaginal hysterectomy for other than malignant or septic disease is much more limited than the present literature of the profession would lead us to believe.

Inversio Uteri.

Dr. JOHN W. WALKER (*The Lancet*, August 29, 1896) reports the following case: Labor began at 10 P. M., and at 2.15 A. M. the child was born. Immediately afterward the physician placed his hand upon the patient's abdomen and found the uterus quite firm. While tying the cord the patient gave a loud scream, as if in sudden and violent pain. Her face was pallid, large beads of perspiration came out upon the forehead; the pulse became very small and rapid, and the skin cold and clammy. On examination, the whole uterus was found lying outside the vulva with the placenta attached, but little or no hæmorrhage taking place. A hypodermic injection of ether was given and the pillows removed from under the head. The placenta was peeled off, and attempts made to reduce the inversion. When the uterus was returned to the vagina and nearly everted, strong contractions again inverted it. Assistance was summoned, and with the aid of chloroform anæsthesia the inversion was completely reduced. Hot intra-uterine injections caused the uterus to contract firmly, and no subsequent trouble occurred.

AUSTRALIA.

Cancer in New South Wales.

Dr. G. L. MULLINS (*The Australasian Medical Gazette*, January, 1896) finds that of five hundred and eighty-five females who died of cancer, two hundred and two were affected in the uterus. The period of life at which death occurred was between twenty-five and eighty-five years, but it was not common before the fortieth year. It occurred most frequently between the forty-fifth and the sixtieth year. The average number of children borne by each female dying of cancer of the uterus is 5.07. Two single females died of the disease and seventeen who were married but had no issue. There is no information as to whether any of these women had ever had miscarriages.

Summary.—1. Although New South Wales has one of the low-

est death rates in the world from cancer, the disease is undoubtedly increasing in the colony.

2. The cancer age is from thirty-five upward.
3. Cancer is slightly more prevalent among males than females.
4. The deaths from cancer occur chiefly among natives of Great Britain and Germany.
5. Climate appears to have little or no effect on the production of the disease.
6. The stomach is the organ most affected in males; the uterus in females. The stomach is also largely affected in females.
7. Heredity is the chief cause of the production of cancer. Chronic irritation is an important factor, but its true significance is still a matter of dispute. Meat eating, alcohol or tea drinking, tobacco smoking, etc., are not primary causes of cancer.

(G. H. MALLETT, New York.)

PÆDIATRICS.

UNITED STATES.

The Surgical Treatment of Infantile Paralysis by Arthrodesis.

CARL BECK (*Medicine*, May, 1896) reports the following case: R. D., a previously healthy child, was attacked at the age of four years with acute poliomyelitis, resulting in paralysis of both lower extremities. After a year of the usual treatment she could use her left leg; also the right psoas and adductors enough to throw the right leg forward and inward, but not enough to make any firm movement, the leg swinging of itself as she walked on crutches. The writer saw her first when she was fifteen years old. Atrophy and slight flexion of the leg, with the usual secondary pelvic and spinal changes, had occurred. She walked only with a crutch. Forward motion of the leg being possible, it was thought that a stiff leg would enable the patient to walk without a crutch; and this expectation being realized by the experiment of putting the leg in a plaster-of-Paris cast, arthrectomy of the knee joint was performed; atypical resection save that part of the condyles were removed anteriorly on account of deformity of the bones from long contracture.

We must remember that many cases of infantile paralysis im-

prove greatly with persistent care; also that unless some power remains, or is by treatment restored to the thigh flexors, a stiff leg would be useless. Therefore the indications for this operation are: 1. Certainty that without it no further improvement will take place. 2. Preservation of power in some of the thigh muscles. This method may be employed also where the feet alone are paralyzed. The operation in the considerable number of cases reported has given uniformly good results, doing away with crutches and braces, and thus preventing secondary deformities.

Malignant Endocarditis.

J. H. FRUITNIGHT (*Archives of Pædiatrics*, September, 1896) describes the following case: Rosina K., aged eleven years, first came under observation on January 30th, after a week's illness. She had had acute articular rheumatism two years previously, and the father had suffered from the same disease. The present illness began with vomiting, headache, and high fever; the headache had continued, together with drowsiness. On admission, the patient presented a general typhoid appearance—prostration, anorexia, and constipation. The tongue was fissured and covered with sordes. The abdomen was tympanitic and tender, without rose spots; the spleen was enlarged and tender; the heart and lungs negative. The temperature on admission was 103.5°; pulse, 112; respiration, 42. The case was diagnosticated as typhoid fever, and the Brand bath was ordered, but had little effect. Delirium set in. On February 2d a large bulla filled with hæmorrhagic fluid appeared on the first joint of one of the great toes; an ecchymosis also appeared on the right elbow. On this night the pulse reached 180; the heart sounds were feeble but continuous. Petechiæ and subconjunctival hæmorrhages appeared; coma set in, and death occurred on the following day. Besides the baths, treatment had consisted only of stimulation and ice to the head. On autopsy, a partially cicatrized abrasion was found on the left instep. The heart showed compensatory hypertrophy, small subserous hæmorrhages, and upon the tricuspid and mitral valves small vegetations and ulcerations. The kidneys exhibited thrombotic infarctions, and the liver slight parenchymatous hepatitis. The mesenteric glands were somewhat enlarged. In the left lumbar region there was circumscribed peritonitis. The intestines showed externally hæmorrhagic spots and internally non-typhoidal

ulcerations. The stomach, bladder, uterus, and ovaries exhibited small hæmorrhages, and the stomach some ulcerations. The brain was highly congested; there was bloody fluid in the ventricles, and a subarachnoid hæmorrhage over the right first frontal and orbital convolutions. The microscopical examination showed that the vegetations consisted mainly of granular fibrin with nuclei of round and spindle-shaped cells; the subjacent endocardial tissue was infiltrated with round cells. The vegetations contained groups of micrococci, a culture from which showed almost pure colonies of the *Staphylococcus pyogenes aureus*. The case was therefore one of malignant endocarditis, due to staphylococcus infection. Probably the preceding rheumatism had induced some change in the valves which acted as a predisposing cause, while the abrasion on the foot gave entrance to the staphylococci, the exciting cause.

For the development of a malignant endocarditis there must be entrance into the blood of micro-organisms, together with an especial susceptibility of the endocardium. Probably the germs are carried directly to the valves; their entrance may even be through the respiratory tract. The left heart is more frequently affected than the right, probably because the germs flourish better in blood rich in oxygen. The microbes are of various kinds in different cases, and, indeed, often in the same case. It appears that the mitral valve is the favorite seat of the pyogenic sorts and the aortic of the pneumococcus. Streptococci produce the most virulent form of the disease with the most rapid death. The activity of the bacteria is augmented by a mixture of different kinds.

The disease is rare, particularly in children, probably because it is especially connected with degenerating influences. It may be primary or secondary or allied to associated septic processes. It is, in fact, of an essentially septic character, and to the transportation through the circulation of its morbid products are due the local and constitutional symptoms. The primary form without causative lesion or disease is very rare. The secondary form occurs most often in the course of pneumonia, but may complicate rheumatic endocarditis, chorea, cerebro-spinal meningitis, tuberculosis, diphtheria, small-pox, scarlatina, and epidemic dysentery; it probably does not complicate intermittent fever. The slightest traumatism, even a scratch or the pulling off of a hangnail, may be a sufficient entrance for infection.

The lesions of the disease may be vegetative, ulcerative, or sup-

purative, or a combination of these processes. Necrosis also may occur. The vegetations consist of fibrin masses harboring micro-organisms; from these, minute emboli are swept into the blood stream, giving rise to infarcts all over the body.

The symptomatology follows two chief types—the pyæmic or septic and the typhoid. A few cases resemble intermittent fever or acute cerebro-spinal meningitis. The onset may be rapid or slow; where there has been no evidence of previous cardiac disease it is very insidious. The frequent disturbances of respiration and the hæmoptyses are doubtless due to obstructions in the pulmonary circulation. Rarely is discomfort referred to the cardiac region; the physical examination of the heart may be throughout negative, though there is often a systolic blowing murmur; an aortic bruit favors the diagnosis. The disease is difficult of recognition, a diagnosis of typhoid being usually made. The temperature curve of the latter disease is, however, more regular in its exacerbations. A blood examination would exclude intermittent fever and a sputum examination phthisis, which may also be simulated. Careful search for a nidus of infection must be made before reaching a conclusion. Inoculation experiments may also be of value. We may say that if a patient show no sign of previous valvular disease, but exhibit a slight blowing murmur most intense at the apex, without rheumatic symptoms or other possible causes, but with signs of grave constitutional disease and prostration, the case is probably malignant endocarditis. If, in addition, there are petechial hæmorrhages and febrile action, and if hæmorrhagic measles, hæmorrhagic variola, epidemic cerebro-spinal meningitis, and typhus fever can be excluded, this probability is greatly strengthened.

The disease has been invariably fatal. The local source of infection, if such there be, should receive appropriate attention; hydrotherapy for the fever, stimulation, and proper diet complete the treatment. Caution should be used in giving digitalis. Bichloride of mercury, phenic acid, the inhalation of oxygen and of ozone have been recommended for their germicidal action. But nothing serves; and in the future we should try the streptococcus antitoxic serum, which can at least do no less than past methods of treatment.

GERMANY.

The Therapeutics of Summer Diarrhœa in Infancy.

O. REINACH (*Munich. med. Wochenschrift*, May 5, 1896) says that the treatment of severe, acute, gastro-intestinal affections of infants must fulfill principally two indications: (1) To check inspissation of the blood; (2) to afford rest for several days to the digestive tract. We may add a third indication—*i. e.*, to introduce such nutriment as we may through some other channel than the alimentary canal. The first indication is usually met by stimulation of the heart, either by cutaneous irritation, such as a mustard bath, or by the administration of internal stimulants. These remedies, however, often fail. The subcutaneous injection of small quantities of common salt has yielded favorable results, the dilution of the blood being accomplished not by the small amount of the injection, but by the diffusion of water from the tissues excited by the salt. The same dilution of the blood has been noted following the injection of diphtheritic serum. The author therefore made experiments with the sterile serum of healthy cows. The subjects, fifteen in number, ranging in age from two weeks to nine months, were all artificially fed infants; the cases were very severe, generally moribund; they were admitted to treatment on the second or third day, and had already lost considerable weight. Four cases died, two having a complicating pneumonia, and two serious follicular involvement of the large intestine. The injections, consisting of from ten to twenty cubic centimetres in the lateral thoracic region, were generally given in the evening. By the following morning the appearance of the cases was improved: the gaze was clearer, the cyanosis in many cases had disappeared, the cutaneous vessels were again injected, the fontanelles were tenser, and the pulse, which had in many cases disappeared, could again be felt; the limbs were warmer, the temperature of collapse had given place to a normal one, the skin and internal temperatures becoming equalized; some of the children again took the bottle. The improvement in some continued; others required a second injection. No local reaction was observed, but in two cases there was a rise of temperature to fever heat. In one a measly exanthem lasting two days without fever was observed a fortnight after the injection. The urines of three cases were examined and showed no albumen.

No local treatment was adopted, the infants being fed for one or two days on diluted rice water. The improvement in digestion and stools, while partly due to the restricted diet, was also probably due to the metabolism excited by the other ingredients of the serum; salt especially is known to cause glandular activity. With the stoppage of nutrition by the digestive tract the albuminoid substances of the serum injected become of importance. The results of experiments, though variable, have shown the possibility of subcutaneous nutrition. We may, in fact, consider the injection of serum as a nutritive infusion, inasmuch as it increases the metabolism of albuminous substances. The quantity of albumen in twenty cubic centimetres of serum is small, about 1.5 gramme—*i. e.*, about as much as is contained in one hundred and fifty grammes of mother's milk. Somewhat larger quantities, perhaps divided into two daily doses, may probably be used. The deficiency of fat in the serum could be met by the subcutaneous injection of olive oil. Such quantities of nutriment, though necessarily small, are of real value in partially replacing the usual food during the brief enforced rest of the alimentary canal.

The Secondary Effects of Antidiphtheritic Serum.

Dr. BARTH (*Deutsche med. Wochenschrift*, June 18, 1896) remarks that, antidiphtheritic serum having been in use for a year and a half, we can now draw some conclusions regarding its secondary effects. It can not be denied that certain symptoms not referable to diphtheria have followed its employment. These effects appear to depend but little on the size of the dose, and not at all upon the age of the subject; they are not modified by the bacteriological character of the disease, nor indeed when the serum is employed prophylactically. Between ten and twenty per cent. of the cases are thus affected. Almost always there is an exanthem, which, however, varies much in its appearance and accompanying symptoms. Most often this exanthem takes the form of an urticaria, erythema, or a measles or scarlatina rash. The eruption may appear at any time after the injection up to the thirtieth day; but almost always there is what we may call an incubation period of not less than three days. In general, the erythema-like and urticaria-like eruptions appear from the fourth to the eighth day, and the measly and scarlatiniform rarely before the seventh day. The average duration of the erup-

tion is five or six days. Recurrence has been noted in two cases; desquamation is rare. Chills have not been observed, but, while the course of the exanthem may be apyretic, its appearance and course are generally accompanied by fever and a corresponding acceleration of the pulse. Articular affections usually attend the eruption, but may be observed alone. Several joints are generally involved together, the knee and foot being most often affected. There is pain on motion, sometimes spontaneous pain, and usually signs of inflammation. Arthralgia and myalgia are also observed; the muscles of the sacro-coccygeal region are often so severely affected that the patient can not raise himself in bed. Sometimes the picture is that of an acute articular rheumatism. The duration of these symptoms corresponds to that of the eruption, though sometimes lasting a day or two longer. The author has observed one case with involvement of the heart; on the ninth day after injection urticaria and arthralgia were noted, with a temperature of 38.5° C. and a pulse of 144; friction sounds were observed at the apex of the heart and above the aorta; three days later the fever ceased, the heart sounds became clear, but the pulse dropped to 56 with slight arrhythmia; normal heart action returned after a few days. Enlargement of the spleen has been sometimes observed; there has frequently been enlargement of the lymphatic glands, and circumscribed oedema in the face and on the back of the hands and feet. The author has observed in one case great swelling of the nose, with inflammation of the nasal mucosa, disappearing in a few days; there was no renal complication. Neuralgic symptoms have been several times noted. Regarding renal disease, we must remember that diphtheria itself often causes albuminuria and nephritis, and, when these symptoms are observed after the use of the serum, they are more likely to be due to the original disease; in fact, the proportion thus affected in those treated by serum is smaller than in those not so treated; we must therefore consider the production of renal troubles by serum improved.

We may, then, regard the prognosis of serum intoxication as good. In no case has death been proved to be with certainty due to this cause. One case is reported which recovered from the diphtheria, but on the twenty-eighth day after injection was attacked with an exanthem resembling *scarlatina miliaris*; nephritis, increased heart dullness, and pneumonic consolidation developed; death followed, and the autopsy showed pneumonic patches, cardiac

dilatation, fatty infiltration of the liver, and an acute hæmorrhagic nephritis. Another similar case has been reported which could not be differentiated from true scarlatina; and in neither case can it be shown that the renal trouble was not due to the original diphtheria. Regarding the cases in which death has occurred shortly after the injection, in one the child presented a serious septic appearance from the first, and there was considerable reason to suppose that the diphtheria was complicated by a *scarlatina sine eruptione*. In another case death was due to a toxic nephritis following a prophylactic injection; we can not, however, be certain that the symptoms were not due to a veiled diphtheritic infection. With reference to the cases in which collapse has followed the use of the serum, it is not fair to regard the serum as the cause, since unexpected cardiac failure is of not infrequent occurrence in diphtheria itself.

These isolated cases in which serious noxious sequelæ have occurred are few in comparison with the cases benefited; they should only arouse further investigation regarding these noxious effects; not incite us against serum therapy.

AUSTRIA-HUNGARY.

Demonstration of a Form of Disease to be called Molluscum Contagiosum Giganteum in a Child.

M. KAPOSI (*Wien. klin. Wochenschrift*, June 25, 1896) presented the following case in a child six months old: The disease was of two months' standing. The child's head was covered with a dirty yellowish, seborrhoic mass; the conchæ auriculi showed incrustations like those of eczema serum. The face, forehead, and chin presented a different appearance. The cheeks were covered each by a slightly raised patch, dry, smooth, shining, and greenish black; at the borders of the patches was raised and slightly reddened skin. The forehead and chin were covered with small patches, some discrete, other confluent, of the same general appearance, but less smooth and cleft in a *quasi-verrucose* manner. The arms showed the same lesions, somewhat more raised, divided by transverse furrows, whose sides sloped precipitately to the healthy skin between the patches. The thighs also presented patches.

The task, then, was to make out the elementary form of the lesion. Part of the face and neck presented many efflorescences,

some red and punctiform, others large and of a shining pearly appearance, with central depressions. Evidently, then, the development was a superficially nodulose one, with a tendency to peripheral growth, the opaque contents of the nodules being an epidermoid mass. A miliary growth was thought of, but excluded by the central depressions and the size of the patches with their cuticular bases. Another kind of epidermal proliferation must be supposed, and a diagnosis of molluscum contagiosum was therefore made. From the nodules of the ordinary disease a racemose body can be expressed which when torn yields a milky matter containing many molluscum bodies. This has induced the author to believe that the process is really a proliferation of the epithelium of the glandular canal, while the molluscum bodies depend upon a not yet defined degeneration of the cell protoplasm. It was hard to find a lesion suitable for this test among the large tumorlike masses or the miliary forms, which latter contained only epidermoid flakes and small shining bodies, perhaps related to molluscum bodies. On the third day, however, a lesion appeared in which molluscum bodies were found, though of very varied forms. Another patch of the clinical appearance of molluscum developed, followed by the typical inflammatory action of the surrounding skin, thus substantiating the histological diagnosis. The incrustations could be explained by the extensive fatty degeneration of the epidermis cells of the tumors, complicated on the head by a fine seborrhœa. Thus we find, notwithstanding the atypical appearance, an old disease; still, it seems proper to recognize this appearance by qualifying the name by the adjective "giganteum."

The crusts of the tumors were softened by diachylon ointment and soap washings and cleaned off. After this green soap, salicylated soap-plaster and boric-acid ointment, were employed, care being taken to avoid exciting inflammatory action. Such action took place about a few of the patches, the patches dropping out and leaving cicatrices. The greater part dried and exfoliated, leaving slightly reddened areas of healthy skin, the red color later gradually disappearing.

FRANCE.

Albuminuria in the Newborn.

AUDEBERT and ARNOZAN (*Jour. de médecine de Bordeaux*, May 10, 1896) remark that Virchow and Dohrn have found albuminuria in thirty-eight per cent. of the newborn, the results of normal confinements, and in forty-three per cent. of those the results of difficult labors. Martin and Ruge have found albuminuria in only about six per cent. of new-born infants; it appears on the second or third day, and ceases after six or eight days. Out of five infants born of albuminuric mothers Chambrelent and Cassaët found nephritic lesions in three. The authors have compared the urines of children born of healthy mothers with those born of mothers suffering from Bright's disease. Of the sixteen infants of the first series, the urine of only one showed albumin, and that only in minute traces. Out of the five infants of the second series albumin was found in four cases, while the fifth child was attacked with convulsions on the third day. This would seem to show the possibility of the transmission of toxins from the blood of the mother to that of the child.

GREAT BRITAIN.

Anti-Diphtheritic Serum and its Preparation.

T. J. BOKENHAM (*Lancet*, August 22, 1896) considers Roux's method of preparing serum unnecessarily elaborate. He himself uses very virulent bacilli, cultivating them in flasks of bouillon at a temperature of 37° C. for two or three weeks. It is important that the bacilli should be brought into contact with a free supply of oxygen, that the flasks should be undisturbed, and that the growth should be in the form of a dense white pellicle. The culture is then passed through a sterile porcelain filter. The resulting toxine must be strong enough to cause death within forty-eight hours when given in a dose of five centigrammes to a three-hundred-gramme guinea-pig. The horses used for immunization should be selected with care. Only young and healthy thoroughbreds should be chosen; in such animals the reaction is less, and immunization is more rapid and more easily maintained; the risk of losing such animals also is less. These horses then are subjected to graduated doses of the pure toxine until they show no serious local or general reaction. The

smaller doses are given subcutaneously, the larger best by intravenous injection. From time to time the serum is tested; after three or four months it should possess an antitoxic power of from five hundred to seven hundred units per ten cubic centimetres. To obtain the serum in quantity the jugular vein is opened and the stream of blood allowed to flow into filter flasks, which are then placed in a cool dark chamber or ice safe for from twenty-four to thirty-six hours. The antitoxic value of the serum is ascertained as follows: Of a series of guinea-pigs, one, a control animal, receives the lethal dose of diphtheritic poison; the others receive the same, mixed with various quantities of the serum to be tested. The author has lately adopted the Behring standard, according to which a serum, ten cubic centimetres of which are said to possess an immunity value of six hundred units, is a serum of which $\frac{1}{800}$ of a gramme completely protects the animal against ten times the lethal dose of toxine. After being tested, the serum is sterilized by passage through a pressure filter, when it is ready to be bottled for use.

AUSTRALIA.

A Case of Ulcerative Endocarditis in a Child Five Years of Age.

A. JEFFREYS WOOD (*Intercolonial Med. Jour. of Australia*, July 20, 1896) reports as follows: M. G., female, aged five years. The maternal grandmother had suffered from rheumatism and died of heart disease. An aunt on the mother's side died of pleurisy and heart disease, and an uncle on the same side of pleurisy. The child's previous history had no bearing on the case. On May 16th the patient was taken with paroxysmal headache, fever, and cough. She improved at first, but on May 23d she showed disturbance of speech and right hemiplegia. On admission to the hospital, May 27th, the hemiplegia still persisted, but the power of speech had returned. She was very irritable. On physical examination, the lungs were negative; the heart's apex beat was in the fifth space just outside the nipple line; there was a loud mitral systolic murmur, loudest at the apex and transmitted to the left; the spleen's area of dullness was enlarged; there were a few petechiæ on the abdomen and legs; the urine was slightly albuminous. The first night she had a temperature of 104°; pulse, 150; respiration, 42. On May 30th the petechiæ had spread over the entire body, and that evening the patient had a convulsion followed by free sweating and some rigid-

ity of neck and limbs. Optic neuritis and retinal hæmorrhages were noted. Coma supervened, followed by death on June 2d. Post mortem: The peritonæum showed numerous petechiæ. The right pleura presented a few old adhesions. The heart was hypertrophied, its external and inner surfaces dotted with fine hæmorrhages; there was great thickening and infiltration at the base of the mitral valve. The spleen was enlarged and contained infarcts. The kidneys were in the same condition, and their cortices showed small hæmorrhages. Numerous hæmorrhages were also found in the cerebellum. Examination of the cerebrum showed thick purulent lymph in the right and left Sylvian fissures and behind the fissure of Rolando. The right side of the cerebrum showed hæmorrhage and softening, particularly in the lenticular nucleus. On the left side there were petechiæ in the external capsule, while the middle cerebral artery contained a septic thrombus at the entrance of the fissure of Sylvius.

It is to be noted that this case came under observation with symptoms of cerebral trouble. The mitral lesion was apparently of some months' standing, and the pleural adhesions were not recent. No other source of infection could be discovered.

SWITZERLAND.

A Case of Tetany in Childhood.

T. ZANGGER (*Correspondenz-Blatt für Schweizer Aerzte*, July 15, 1896) says that, while the ætiology and pathology of tetany is still obscure, there is no evidence of its being a specific infection. We find that the disease occurs in conditions of nutritional disturbance, being due to the influence of toxins of the most varied kinds, such as are generated in functional derangements of the stomach and intestines, in the prodromal stage and in the course of acute infectious diseases, and in chronic intoxications; nervous states, such as neurasthenia or hysteria, congenital or acquired, favoring its development. Conditions in which such toxins are generated permanently, or in which antitoxines are permanently wanting, lead to death (as in gastrectasis or after thyroidectomy).

The following case is reported: H. P., aged two years and nine months. Parents and two brothers healthy; father very excitable. Patient had previously had attacks of laryngeal spasm, but never any spastic condition of the hands. The child, on first examination

(March 8th), had been ill one day. The ribs and epiphyses showed rachitic deformities. The body presented a circumscribed, macular, light-red erythema, disappearing on pressure; the pharynx and hard palate were slightly red; there was slight bronchitis; the reflexes were not increased; the temperature was 40.1°; pulse, 100; respiration, 30. In the afternoon the patient had several attacks of spasm of the glottis; in the night these attacks increased in frequency, and were accompanied by spasms in the hands. At the joints the hands were flexed and slightly supinated, the phalanges were in maximum extension, and the thumbs flexed and doubled upon the palms; the condition could be altered only with force and temporarily. The reflexes were increased. On March 9th a typical morbillous eruption had appeared, and the conjunctivæ were dark red and secreting. The temperature was 36.8°. The diagnosis—measles and tetany—was now therefore clear. The spasm lasted continuously for thirty-six hours, then occurred intermittently and with normal temperature for four days. During the intervals and until March 18th the spasm could be produced at will by constriction of the upper arm with a bandage. The spasms of the glottis disappeared after March 16th, and by March 21st a paresis of the lower extremities (in which no spasms were observed) was much improved. The measles ran a regular course, with desquamation, and shortly after both the brothers were attacked.

Here, then, in a patient of an hereditary nervous tendency and rachitic, an infectious disease was only needed to precipitate a mild attack of tetany. A favorable outcome was therefore to be expected on recovery from the measles. The thyroid gland, to various anomalies of which tetany has been ascribed by some, was found normal. The paresis seemed due directly to the measles, and the erythema was probably a toxic one, such as is often observed in the prodromal stage of the infectious diseases.

(A. D. CHAFFEE, New York.)

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SHORTENING THE ROUND LIGAMENTS;
INDICATIONS, TECHNICS, AND RESULTS.*

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HISTORICAL.

Alquié, of Montpellier, France, appears to have been the genius who first conceived the idea and proposed a plan of shortening the round ligaments to correct downward and backward displacements of the uterus. In his historical memoir to the Académie de Médecine (1) he calls the operation *utero-inguinographie*. He had performed it only upon animals and the dead subject, never having operated upon the living woman. The proposition of Alquié was referred to a commission composed of Baudelocque, Bérard, and Villeneuve, who, after wrestling with the problem for four years, finally reported to the Académie (2) in substance as follows: They condemned the proposal of Alquié *in toto*, both as regards the possibility of permanently correcting uterine displacements by shortening the round ligaments and as regards the practicability of the operation itself. They asked the Académie, however, to pass a vote of approbation of Alquié for his prudence in never having attempted

* Read before the Second International Congress of Gynæcology and Obstetrics, Geneva, Switzerland, September, 1896.

his operation upon a living woman. The report was received by the Académie and acted upon in the sense of the reporters.

The first note of mild approbation comes from Aran (3), who, in advance of the time in which he lived, grasped the full significance of Alquié's proposition that shortening the round ligaments will bring into position a uterus displaced downward or backward, or both, but was deterred by the difficulties of the operation, which he considered one next to impossible of successful execution.

Deneffe (22), with the courage of the recent graduate, was the first to attempt the operation upon the living woman at Ghent, Belgium, in June, 1864. During his student days he had frequently practiced the operation successfully upon the cadaver, and, immediately upon obtaining his degree, requested of Burggraeve and Soupart an opportunity to shorten the round ligaments upon the living woman, avowing his confident belief that he would be able to carry the operation to a successful conclusion. His request was granted, and, in the presence of the masters, the operation was undertaken upon a patient suffering from prolapsus. Deneffe, however, failed to find either round ligament, although, following a suggestion of the great Burggraeve, he opened up the entire inguinal canal on both sides. The patient recovered from the attempt, but Burggraeve was promptly called to account by the Commission des Hospices for permitting experiments upon patients committed to his care.

Thereafter the idea seems to have slumbered in the medical mind, although Freund (4), and probably others, occasionally attempted the operation upon the cadaver, until William Alexander (5), of Liverpool, performed the first successful shortening of the round ligaments upon the living woman on December 14, 1881. Very soon after, in February, 1882, James A. Adams (6), who had for two years previously both practiced and taught the operation upon the cadaver, and recommended to his students its performance in suitable cases upon the living woman, performed his first operation—unsuccessful, however, on account of posterior adhesions of the uterus—upon a patient suffering from prolapse.

Such are what are believed to be the correct data in relation to the early history of the operation under discussion. From these beginnings the operation, although viewed askance in its infancy, and in spite of the fact that its performance to the majority of surgeons is not a congenial undertaking, has steadily, though slowly,

gained favor and adherents as the ideal method of surgical procedure in those cases to which experience has shown it to be adapted. In America, probably, earlier and to a wider extent than in any other country, has it found due recognition; there also does it count its most numerous and enthusiastic supporters.

NOMENCLATURE.

Alquié himself entitled the operation *utero-inguinoraphie*. Only one writer (29) seems to have followed him in the use of this designation, which seems inappropriate in that neither the uterus nor the groin is sutured, but the essential of the operation is the resection and suture of the round ligaments. Cittadini (137) calls it *hysteropexie ligamentaire*. *Abbreviatio ligamentorum rotundorum uteri*, used by Riasentseff (50, 70, 71), itself needs abbreviation. It has been customary since 1882, when the first publications of Alexander and Adams called attention also to the original proposition of Alquié, to designate the operation variously, according to the writer's conception of the relative share of honor due each of these three men. Patriotism possibly, in some instances, also had more or less to do with the matter. Thus it has been called the Alquié, the Alexander, and occasionally the Adams operation; and two, and even all three, of these names have been combined in designating the procedure. Alquié was undoubtedly the genial originator of the idea. Alexander performed the first successful operation, and, in addition, deserves our thanks for the persistence with which he kept the operation before the profession by his frequent publications. Adams was preceded by Alquié in the conception of the operation, by Deneffe in its unsuccessful attempt upon the living woman, and by Alexander in date of operation, in successful execution, and in publication. The names of each of the three are indelibly and impressively associated with the operation, and can never be obliterated from its history. While second to no one in his admiration of the genius which originated the idea of this ideal operation, as well as of the courage which first attempted and the success which first attended its performance, the writer believes that the time has arrived when names should be dropped in the designation of the operation, and when, until some briefer and just as expressive term be proposed, the operation should be known as shortening the round ligaments.

INDICATIONS.

From the outset the writer would have it clearly understood that the present paper deals exclusively with extraperitoneal or inguinal shortening of the round ligaments, as distinguished from intraperitoneal shortening of the round ligaments after either coeliotomy or vaginal section.

The superiority of shortening the round ligaments over its competitors, the various forms of ventral and vaginal fixation of the uterus, intra-abdominal shortening of the round ligaments, cystopexy of the uterus, and operative procedures on the utero-sacral ligaments, lies in the facts (a) that, while being equally successful and efficient, it is the most physiological of all these operations, both as regards its plan and the character of the results obtained, and (b) that it interferes to a less degree—indeed, not at all—with the functions proper of the uterus, childbearing and childbirth.

Comparison of Anatomical Result with that obtained by Other Operations.—Ad (a). The writer is quite free to admit that an anatomical cure of retroversion can be obtained by each of the above-named operations in from ninety to one hundred per cent. of cases by proper technics and a capable operator. Mackenrodt figures ten per cent. of failures for vaginal fixation. Kellogg, who has probably had the largest individual experience in shortening the round ligaments, writes me: "I have done the operation more than five hundred times, and have had failures in less than five per cent. of the cases." In ventral fixation there is no reason why the average operator should not obtain from ninety-five per cent. upward of anatomical cures.

The quality of the cure, however, is an entirely different matter, especially to the patient. After a successful shortening of the round ligaments the physiological mobility of the uterus remains unimpaired, *no peritoneal adhesions having been established*. In future pregnancies the shortened round ligaments undergo evolution and involution with the uterus. Essential to *all* of the rival operations is the establishment of a condition *always* pathological, *never* physiological, the deliberate creation, repugnant to every surgical instinct, of more or less extensive, more or less firm, peritoneal adhesions. On this score alone, I contend, shortening of the round ligaments, whenever applicable to the particular case, should receive the preference of the true surgeon.

Comparison of the Course of Subsequent Pregnancies.—Ad (b). Their greater or less interference with the functions proper of the uterus—childbearing and childbirth—constitutes the higher standard by which these various operations must now be judged. The writer (186) has recently gone somewhat extensively into this subject, and will not reiterate details here. The record of disasters of pregnancy and parturition following the yet young operation of vaginal fixation of the uterus is already so appalling as to justify the dictum that it has no place, or rather is absolutely contraindicated, in the case of any woman with the possibility of a future pregnancy before her.

Milaender (*Zeitschr. f. Geb. u. Gyn.*, vol. xxxiii, No. 3) and Noble (193) have collected a large number of cases of pregnancy following ventral fixation of the uterus. While the record of ventral fixation in this respect is not quite so bad as that of vaginal fixation, it is still bad enough to impose on us the duty of limiting to as great an extent as possible the field of ventral fixation of the uterus.

Contrast with this the course of pregnancy and parturition after shortening the round ligaments. A slight drawing pain, beginning with the eighth month of pregnancy, and attributed, whether correctly or not, to traction upon the shortened ligaments, has been reported in a few cases. Beyond this, disturbances of pregnancy or parturition, *due in any way to the operation*, have not been observed. This is all the more remarkable when we consider the length of time during which the operation has been before the profession and the numerous subsequent pregnancies which have been reported by many writers. Foreman (61), as long ago as 1887, reported seventeen pregnancies in sixty-seven cases in which he had shortened the round ligaments, all of which terminated by easy deliveries at term. Gardner (41), Alexander (54), Batchelor (151), Johnson (188), and others too numerous to mention, testify to the uniformly smooth and normal course of subsequent pregnancies and labors, recording only very exceptional cases of abortion. The writer's cases of pregnancy following shortening of the round ligaments will be detailed under the head of results.

Broad General Indication and Corollaries.—I have dwelt thus long upon the distinguishing features of the operation of shortening the round ligaments as compared with its rivals—viz., (a) preservation of the physiological mobility of the uterus; (b) non-dependence for success upon the establishment of intraperitoneal adhesions;

(c) the equal permanence, as well as the better character, of its anatomical results; (d) non-interference with the course of future pregnancy and parturition—since a consideration of these features of superiority leads unavoidably to the establishment of one grand indication to which all other indications are subsidiary or corollary. This dominant law might be formulated as follows: *Shortening of the round ligaments is indicated whenever and wherever it will meet the indications as well as or better than one of its rival procedures, i. e.:*

1. In all uncomplicated cases of retroversion, retroflexion, and excessive mobility of the uterus requiring operative treatment.

2. In cases of aggravated ante flexion of the uterus, when the fundus is below the level of the internal inguinal ring—i. e., in all uncomplicated ante flexions worthy of the name.

3. In cases of retroverted ante flexed uteri without adhesions.

4. In simple prolapse of the ovaries without adhesions, when that condition calls for treatment.

5. In cases of adherent retrodisplaced uteri, with or without adhesions of tubes and ovaries, these organs being otherwise in condition to call for an attempt at their conservation. The adhesions in these cases are first to be separated, at the preference of the operator, by means of anterior or posterior colpotomy, median cœliotomy, or by an incision through the peritonæum at the internal inguinal ring, and enlargement of the latter to permit the introduction of one or two fingers. The writer has practiced each of these procedures, the last of which he believes to be original with him.

In two instances I have shortened the round ligaments in order to enable the patients to dispense with the use of pessaries, which they were compelled to wear to maintain the uterus in anteversion. Both ladies considered the wearing of a pessary and all that it implies a nuisance, deliverance from which was not purchased too dearly at the cost of an operation.

Shortening the Round Ligaments not the best Prolapsus Operation.—The above appear to the writer to be all absolutely indisputable indications for shortening the round ligaments. In addition, the operation has been practiced by its originators, and by nearly all of their followers, for the cure of prolapsus uteri. When practiced in these cases it should be clearly understood that shortening the round ligaments is but an adjuvant operation to the necessary plastic work upon uterus, vaginal walls, and perinæum called for by the conditions presenting in each case, and that, in order to secure

the best results, *all* operations called for should be performed at the same sitting. Although among those who practiced this method with success, the writer early became convinced that the function of the round ligaments is not to sustain the uterus from dropping out of the pelvis, and that whatever success had been reached in the treatment of prolapsus uteri by the combination of shortening the round ligaments with plastic work, was due in greater part to the plastic work, and in a minor degree to the anteversion secured by shortening the round ligaments. Since December, 1890, in place of shortening the round ligaments, the writer has employed ventral fixation of the uterus, performed at the same sitting with the plastic work called for by each case, in the operative treatment of complete prolapsus uteri et vaginæ. This combination of ventral fixation and plastic work was taken up some three years later by Kuestner. German writers, either overlooking or ignoring the author's prior work and publication (Edebohls, *The Operative Treatment of Complete Prolapsus Uteri et Vaginæ*, *Am. Jour. Obst.*, vol. xxviii, No. 1, 1893, and *Combined Gynecological Operations*, *Am. Jour. Med. Sciences*, September, 1892), call it Kuestner's method.

OBJECTIONS.

Of the objections to the operation of shortening the round ligaments the greater part, especially that relating to the alleged more or less frequent absence of the ligaments, are purely theoretical (Gehring (12), Smith (52), Bird (152), and others), the more tangible ones concerning themselves chiefly with the technics. These objections have been so frequently, so fully, and so ably answered by others—notably by Kellogg (161)—that I will refrain from entering upon them here. The only serious objections that can be justly urged are the occasional occurrence of hernia and of pains in the region of the scar. How the risk of these occurrences may be minimized, or possibly entirely obviated, the writer will endeavor to show under the head of Technics.

Abnormal Course and Insertion of Round Ligaments.—Regarding the alleged more or less frequent absence of the round ligament, the writer would merely add his testimony to that of other competent observers that the round ligament is a structure constantly present. He failed to find it in one instance only (Case XVI), but the fault lay with his insufficient development as an operator upon the round

ligaments. He hopes to have atoned in some measure for this shortcoming by subsequently finding four round ligaments (the right in Case LVI and Case XCVIII, and both ligaments in Case XCII) that were not in their normal place in the canal. So far as my reading and knowledge go these are the first and only instances in which the round ligaments have been demonstrated to be present in full development while at the same time absent from their normal place in the inguinal canal. The round ligament in each of these instances ran its usual course from the cornu of the uterus to the internal abdominal ring, but, immediately on leaving the latter, instead of running downward and inward in the inguinal canal, it turned abruptly to run upward and outward, behind the transversalis muscle, to be inserted into the outer half of Poupart's ligament and the adjacent portions of the transversalis fascia. Three of the ligaments were found only after tracing them, through a median incision, from the cornu of the uterus to the internal ring, and thence onward in their erratic course to their abnormal insertion, *none* of the fibers, be it distinctly understood, running downward and inward along the canal. The fourth abnormal ligament was found and traced from the internal ring upward and outward by enlarging the external incision. Each of the four abnormal ligaments was cut away from its insertion above, shortened, brought down into its normal place in the canal, and sutured in the usual way (175). Since the above was written, my house surgeon at St. Francis Hospital, Dr. T. A. Lehmann, in shortening the round ligaments of one of my hospital patients, found the ligament of the right side taking the same abnormal course and having the same abnormal insertion as in the four cases just detailed. He successfully followed the same tactics in the management of this case that were employed in three of my operations.

The explanation of this anomaly is not so very clear, but the writer would hazard the surmise that its ætiology is identical with that of non-descent of the testis and spermatic cord in the male, the round ligament being the analogue of the spermatic cord.

The Operation not Congenial to Every Surgeon.—A contra-indication to the operation of shortening the round ligaments that may be allowed by some is inability of the operator to perform the operation. Others, again, will not admit this, and contend that in that case the surgeon should either learn how to do the operation or send his patient to some one who can perform it successfully. The

operation is certainly one that is not congenial to every surgeon; the majority of operators will always find it easier to find the fundus uteri through an abdominal or vaginal incision and stitch it forward than to find, isolate, and shorten the round ligaments in the inguinal canal. It is this difficulty, relatively speaking, of the operation of shortening the round ligaments which has stood in the way of its earlier and more general adoption. Yet, though Adams, one of the originators of the operation, said of it, "The operation is one that all and sundry can not perform," the writer is convinced that, with a knowledge of anatomy and a little practice upon the cadaver, any surgeon capable of doing a Bassini operation for the radical cure of inguinal hernia should be able to shorten the round ligaments successfully.

TECHNICS.

General Considerations.—The essentials of shortening the round ligaments successfully are: 1. To find the round ligaments. 2. To isolate, draw out, and sufficiently shorten them. 3. To properly anchor the external ends of the shortened ligaments.

To begin with, operators have preferences as to which side of the patient to stand on while operating; a few even change sides during the course of the operation. An occasional one stands between the thighs of the patient. The writer prefers to stand on the right side of his patient and to begin the operation upon the left ligament. Next, as to the external incision, the vast majority of operators prefer to incise parallel to Poupart's ligament, the lower end of the incision generally corresponding to the external inguinal ring. The length of incision varies from the neat two- to four-centimetre cuts of Alquié (2), Imlach (27), Kellogg (86), Newman (91), Cleveland (174), to the ghastly gash of Kocher (146), who lays open skin and fat from pubis to anterior superior spine of ilium. Foreman (61) makes a J-shaped incision for æsthetical reasons; Duret (143), a curved incision, with the convexity downward, from one external ring to the other. Alquié, Kellogg, and Newman incise over the middle of Poupart's ligament.

Finding the Ligament.—In searching for the ligament three principal methods have been adopted. The first is to seek and draw out the round ligament at the external ring. Alexander (5) operated in this way upon his first case, and the great majority of all operators since have followed him in this method. The second

method, that originally proposed and practiced upon the cadaver by Alquié himself, is to incise or puncture the anterior wall of the inguinal canal higher up, near the internal ring, and through this small opening to hook up the ligament in the canal and draw it out. Kellogg (86) was the first to adopt this as a routine procedure. Newman (91), following a suggestion of Frank, punctured the anterior wall of the canal a little higher up than Kellogg, and claimed priority. His method, as far as can be gathered from his very deficient and imperfect first description (91), differed in no essential or principle from that of Kellogg, except that Kellogg punctured the anterior wall of the canal near its middle, Newman a trifle higher up—a distinction without much of a difference. Newman's (91) first case was operated upon some three months after Kellogg read a paper (106, page 17 of reprint) reporting a number of operations performed by his new method.

The writer (123) was the first to propose incision of the entire length of the anterior wall of the canal as a *routine procedure* in the operation of shortening the round ligaments. Others before him had, for various reasons, in *exceptional cases*, incised the anterior wall of the canal to a greater or less extent. Deneffe (22), in the very first operation attempted upon the living woman, after failing to produce the round ligaments through the incision of Alquié, at the suggestion of Burggraave opened the entire inguinal canal in the vain attempt to find them. Reid (15), after breaking a round ligament, incised the canal for half an inch to aid him in again finding it. Alexander (17) himself, in one of his later papers, refers to the occasional necessity of partially opening the canal. Roux (95) derived help from incising the arciform fibers to the extent of one centimetre. Blake (134) opened the canal on the left side, after experiencing great difficulty in finding the right round ligament at the external ring of the same patient. A number of operators—Chalot (136), Kocher (146), Werth (171), Kuestner (178), Fabricius (176)—have, in the course of years, followed the writer in advocating incision of the entire length of the anterior wall of the canal.

The name of Newman has, under misapprehension, been so often associated with the writer's (123) modification of the operation of shortening the round ligaments, originally proposed in 1890, on account of the hasty, ill-considered, and baseless claim of Newman (132, 130), that this would appear to be the proper place to empha-

size the fact that Newman's technics come into competition with the prior method of Alquié-Kellogg (2, 85, 88, 106) rather than with those of the writer. In other words, there is nothing essentially original in the operation described by Newman (91).

Isolating and drawing out the Round Ligament.—To find, isolate, and draw out the round ligament is not always an easy matter. The difficulties are materially increased when the ligament is sought and drawn out at the external ring instead of higher up in the inguinal canal. This is due to the anatomical structure of the round ligament, which runs as a single cord from the cornu of the uterus to and through the internal ring and the upper portion of the inguinal canal. It divides up and its anatomy becomes more complicated, however, just within and at the external ring. Adams (6, 183), himself an expert anatomist, quotes Rainey (*Trans. Royal Soc.*, 1850) as giving the most complete and altogether reliable description of the round ligament: "The so-called round ligaments of the uterus, regarded as a muscle, may be said to arise by three fasciculi of tendinous fibers—the inner from the tendon of the internal oblique and the transversalis, near to the symphysis pubis; the middle, from the superior column of the external ring near to its upper part; and the external fasciculus from the inferior column of the ring just above Gimbernat's ligament. From these attachments the fibers pass backward and outward, soon becoming fleshy. They then unite into a rounded cord, which crosses in front of the spermatic artery. . . . It then gets between the two layers of the peritonæum forming the broad ligament, along which it passes backward, downward, and inward to the anterior and superior part of the uterus, into which its fibers, after spreading out a little, may be said to be inserted." From a most minute and brilliant practical demonstration of the anatomy of the round ligaments by Professor James E. Kelly, of New York, which I had the privilege and pleasure of witnessing, I am convinced that the above description is practically correct. When operating at the external ring the difficulties of collecting these scattered fibers of the round ligaments at and near the ring and tracing them upward to where they unite to form a single cord, are additional to those necessarily encountered in separating the round ligament from the ilio-inguinal nerve and fat, as well as from the muscular and tendinous fibers of the internal oblique, which—analogue of the cremaster muscle in the male—invest the round ligament in the canal. When, in addition to this,

it is considered that the round ligament becomes stronger, and is less likely to tear in manipulation, higher up in the canal than at or near the external ring, the advantages, apart from other considerations, of picking it up within the canal rather than at the external ring become apparent.

In drawing out the round ligament the accompanying ilio-inguinal nerve should be carefully separated from the ligament and guarded against division. This will prevent the subsequent pains in and about the cicatrices which are frequently observed when this nerve is divided. The separation of nerve and ligament is difficult only in the canal, where they run side by side. At the upper end of the canal their courses diverge, the ligament penetrating the internal ring, while the nerve continues upward and outward between the muscular layers of the abdominal wall. Werth (171) resects a portion of the nerve to prevent after-pains. With Kuestner (178), however, I have never met with subsequent pain when the nerve is stripped off and preserved.

Another point, to which the writer believes he was the first to call attention, is the advisability of stripping back the investing peritonæum of the broad ligament for a certain distance from off the round ligament in every case. This stripping back of the peritonæum, which is accomplished by the fingers aided by the sense of sight, has two things to commend it. Firstly, it avoids the danger, when drawing down the round ligament, of invagination of a peritoneal pouch or process into the canal, with the possible resultant invitation to descent of a hernia. Secondly, we are assured by this measure that the round ligament is really shortened in its intra-abdominal course between the cornu of the uterus and the internal ring, and not merely stretched in the canal, which, of course, would have no effect upon the position of the uterus. Neglect to shorten the round ligaments *sufficiently*, by stripping back the investing peritonæum, explains many a case of failure or semi-failure of what otherwise would have been a successful operation, as well as the necessity for the use of pessaries after operations by some operators. The corrugated cuff of stripped-back peritonæum, in addition, forms a very effective plug at the internal ring, an additional safeguard against hernia. Newman (132) and Adams (183), in his last paper, also advocate this procedure. In practicing it the writer draws out the round ligament and strips back the peritonæum until the finger passed down to the internal ring recognizes

the impact of the cornu uteri of the same side as it is drawn forward by the round ligament.

The amount of shortening of the round ligaments necessary to be accomplished averages about ten centimetres, and, to make an assuredly successful operation, should not be less than seven centimetres. Alexander (7) draws out the round ligament farther when operating for prolapsus than when dealing with retroversion.

Anchoring the Shortened Round Ligaments.—In no other part of the operation of shortening the round ligaments, or perhaps of any other operation, has the same amount of ingenuity and fertility of resource been displayed as in the attachment and suture of the shortened ligaments. Of those who operate upon and draw out the ligament at the external ring, nearly all stitch the shortened ligament to the pillars of the ring. Alexander (7), in addition, stitches the end of the ligament to the margins of the skin wound, Lee (87) to the periosteum, and Roux (95) to the spine of the pubis. Cleveland (174) brings the ligament out through a puncture of the skin at a little distance from the operation wound, and secures it there with a suture. Carpenter (120) cuts away the excess of ligament an inch or so outside of the ring, splits this inch of ligament longitudinally, and sews each half to the external fascia. In disposing of the excess of ligament the above-named operators, in the majority of instances, simply cut it away. Foreman (61), as a rule, and Adams (183), sometimes, stow away the slack in the wound. Abbe (*New York Med. Jour.*, March 17, 1888) draws one ligament subcutaneously through the fat overlying the pubis across to the opposite side, and there ties it in a living knot with its fellow. Doleris (102), Batchelor (151), and Martin (189) follow Abbe's plan with insignificant modifications. Duret (143) also accepts the same principle, fastening the two ligaments to each other, however, at the bottom of a crescentic wound extending across from one external ring to the other.

Kellogg (67, 106), who, as already stated, draws out the ligament through a small opening in the anterior wall at the upper part of the canal, has varied his method of securing the ligament from time to time. Originally he secured the ends of the ligaments with silver wires, which he tied together over a hard-rubber plate placed on the skin between the wounds. Subsequently he tucked the excess of ligament down into the lower part of the canal. Still later, he drew out the slack of ligament through a separate small

puncture lower down in the aponeurosis of the external oblique, leaving the ligament attached at the external ring, and folding the excess in the fat of the external wound.

Of those who prefer to open the inguinal canal along its entire length, Chalot (136), Kuestner (178), and the writer (123) in his first operations, fastened the shortened round ligaments within the canal just behind the aponeurosis of the external oblique, the cut margins of which were brought together by a series of sutures which also pierced and secured the ligament. Kocher (146) turns the drawn-out ligament upward at the upper and outer angle of the fascial wound, and sews it on to the outer surface of the external oblique aponeurosis in the direction of the anterior superior spine of the ilium. Fabricius (176) and the writer (186, 187), in his later cases, place and secure the shortened ligament in its natural habitat behind the lower border of the internal oblique.

The Accident of tearing the Round Ligament.—When a round ligament tears in drawing it out, what shall we do? The answer to this will depend upon the site of the tear. If the ligament has parted within the canal, the retracted end should be sought for and recovered, if possible, at the internal ring. If this should prove impossible, the peritonæum should be incised at the internal ring and the ligament sought for and brought out of the abdomen with the aid of a finger or two, assisted, if necessary, by slender forceps. If the torn end of the ligament can not be readily found and grasped by the forceps, the finger should be hooked behind the broad ligament of the corresponding side and passed along the posterior surface of the latter until the cornu uteri is reached. The uterus, and with it the torn ligament, is then lifted forward and the round ligament traced from the cornu uteri outward to its torn end, which is then grasped by forceps, brought out, shortened to the requisite degree, and sutured in the usual manner.

The same course may be successful if the round ligament should happen to tear just within the internal ring. In the only instance in which this happened to me I made a small incision in the median line of the abdomen, sought the ligament at its uterine end, traced it outward to the tear, pushed the torn end out of the abdomen through the internal ring, and successfully completed the operation.

When the round ligament tears out of the uterus, or so near the latter as to leave a stump too short to be drawn out and prop-

erly fastened, three courses are open to us. The first is to shorten the opposite ligament, and trust to one shortened ligament to keep the uterus forward. This course has been followed by success in a case reported by Ledyard (13), and the writer has learned of several other successes from personal communication with the operators. Gottschalk (*Ges. f. Geb. u. Gyn.*, Berlin, November 8, 1889) has reported bad effects resulting in a case in which only one round ligament was shortened. In this connection it is interesting to note that Blake (134) advocates operating on one ligament only at a time as a routine procedure, and that Brown (77) quotes Doleris as advising the same procedure in certain cases in order to allow the bladder room for expansion on the opposite side prior to shortening the second ligament.

The second alternative, originally suggested by the writer, but thus far practiced neither by himself nor by any one else to his knowledge, is to open the abdomen in the median line, unite the torn ends of the round ligament, or attach the pulled-out end to the uterus, by suture, and complete the operation in the usual way. Our third resource is to substitute immediately the next best retroversion operation. The writer followed this course in five instances in which the round ligament parted at or near the uterus, performing ventral fixation at the same sitting, with resultant cure of the retroversion in each case.

Strength of Round Ligament.—In estimating the amount of traction the round ligaments will bear without tearing, experience will probably prove to be our main help. In a large number of experiments made by the writer, both on the dead subject and with pieces of round ligament obtained at operation, the force necessary to tear the round ligament varied between the limits of three and fifteen kilogrammes.

The Wearing of Pessaries after Operation.—There exists among operators some divergence of view, both as to the best method of anteverting the uterus before or during operation and as to the necessity of artificial support of the uterus after operation. Some recommend and some condemn the use of the sound to replace the uterus before shortening the round ligaments. Some consider the wearing of a pessary in cases of retroversion or of an intra-uterine stem in cases of retroflexion for a certain variable period after operation as well-nigh indispensable to success. My own practice in these regards has been as follows: After the patient

is under ether I satisfy myself that the retroverted uterus can be brought into pronounced anteversion by bimanual manipulation; that tubes and ovaries are normal in size and not adherent. I then curette the uterus, allow it to assume any position that it will, and proceed to shorten the round ligaments, lifting the fundus forward during the operation by traction on the ligaments. I have never had my patients wear any kind of support after operation. The positive shortening of the intra-abdominal portion of the round ligaments accomplished by the technics which I employ renders a pessary or support after operation entirely superfluous.

The Question of Hernia following Operation.—From the very beginning the possibility of hernia following the operation of shortening the round ligaments has been ever present in the minds of operators and measures of precaution against this accident have entered into the technics of most surgeons. Previous to the advent or just appreciation of the value of the Bassini operation for the radical cure of inguinal hernia these precautionary measures were of a nature as unsatisfying as were the then known operative procedures against hernia themselves. Not that hernia in any considerable degree of frequency followed the operation of shortening the round ligaments; yet the slight risk of its occurrence formed the chief and perhaps only well-founded objection to the operation. Among others, Foreman (61) early included the deep abdominal muscles in his sutures, burying the latter. Fry (124) mistakenly advocated open treatment of the wound to prevent hernia. Kocher (146), after drawing out the ligament and securing it as already described, closed the canal by a row of sutures embracing the entire thickness of the muscles of the abdominal wall, and tied upon the fascia of the external oblique. Yet these measures were all more or less crude, and not up to the standard of modern surgery, until Fabricius (176) and the writer (186, 187), each in his own way, *correctly* applied the essential principle of the Bassini operation—the sewing of the lower edge of the internal oblique and transversalis muscles to Poupart's ligament, and the obliteration of the inguinal canal—to the technics of shortening the round ligaments. To Fabricius (176), between us, belongs priority both of execution and of publication. He unites the internal oblique and transversalis to Poupart's ligament by a row of interrupted buried-silk sutures, each of which also pierces the round ligament. Over this he closes the anterior wall of the canal by a second row of interrupted silk sutures.

The technics employed by the writer will be described in detail in its proper place. The question of hernia will be again referred to in the analysis of the author's statistics.

Suture Material and Drainage.—In the matter of suture material and drainage the same latitude of opinion and practice obtain as in other departments of operative surgery. The writer has tried every form of suture material, but now uses exclusively the buried running suture of forty-day catgut for the deep parts and a subcutaneous catgut suture to unite the skin. In the first half of my cases I drained the deep parts of the wound with a few strands of silkworm gut; the last sixty or so have, with a rare exception now and then, not been drained.

Anæsthesia.—Shortening the round ligaments can be performed, if necessary, without general anæsthesia. Kellogg (106) operates quite frequently under local cocaine anæsthesia. Ether has been the anæsthetic in nearly all of my cases; I have, however, operated under cocaine, with Schleich's infiltration anæsthesia, and without any anæsthetic whatsoever.

Comparison of Different Methods of shortening the Round Ligaments.—Before entering upon the description of my present method of shortening the round ligaments, it is but proper to state that I have had personal experience with each of the three principal methods under discussion—that of operating at the external ring (Alexander), that of hooking up the ligament through a puncture of the anterior wall of the canal near the internal ring (Alquié-Kellogg), and that of laying open the canal along its entire length (Edebohls).

After operating upon seventy-four cases after his (123) original method, the writer, in September, 1894, during a visit to Battle Creek, Mich., saw Dr. Kellogg shorten the round ligaments of two patients. I was so fascinated by the smallness of the incision required, by the neatness of the entire operative technics, by the dexterity and celerity (nine minutes exactly) with which Dr. Kellogg performed his operation, that I at once discarded my own method and adopted Kellogg's. I succeeded with it quite satisfactorily, in a few instances, however, having to open the canal along its entire length to find, draw out, and secure the ligament. In the twenty-six cases in which I practiced Kellogg's method three ligaments (Cases XCII and XCVIII) were unfortunately not present in the canal. In some of the other cases other tissues—in one instance even the femoral artery—were hooked up and drawn out before

the ligament was found. I should have persisted in a further trial of the method, however, and perhaps have adopted it permanently, had I not missed too greatly the ease and certainty with which the ligament could be found and isolated after opening the canal, as well as the welcome test of the proper amount of shortening afforded by passing the finger to the bottom of the canal and feeling the cornu uteri at the internal ring when the ligament was drawn taut. The only thing I did not quite like in my old operation was the method of securing the ligament just behind the aponeurosis of the external oblique. With the modification, however, of closing the wound by a typical Bassini and of suturing the ligament in its natural habitat, this objection, together with that of the risk of hernia, seemed to be overcome. Since January, 1896, when he first adopted it, the writer has practiced his present method in fourteen cases.

To compare once more and briefly the three methods of shortening the round ligaments, let us see how each of them meets the three requirements of a successful operation: (1) To find the ligaments, (2) to isolate and draw them out sufficiently, (3) to properly anchor the shortened ligaments. It is self-evident that the round ligaments can be more readily found and more easily, directly, and gently separated from their surroundings after the entire canal is opened than by fishing for and drawing them out either at the external ring or through a small opening in the anterior wall of the canal near the internal ring. Moreover, in cases of abnormal course and insertion of the round ligament, five instances of which have been detailed above, the real condition present could be known with certainty only after opening the entire canal.

In regard to the third postulate—the proper anchorage of the shortened round ligaments—none of the many methods already referred to compares in directness and naturalness with that of anchoring the round ligaments in their normal situation in the canal. This can be done properly in but one way—*i. e.*, with the canal widely open.

AUTHOR'S PRESENT METHOD OF SHORTENING THE ROUND LIGAMENTS.

On the day preceding operation the bowels are emptied by a laxative, the pubis and external genitalia are shaved, and a cleansing bath is given. Eight to twelve hours preceding operation an oint-

ment, composed of creolin (ten parts) and mollin (ninety parts), is rubbed into the skin of the lower abdomen, pubes, and adjacent surfaces of the thighs. The parts are then covered with sterile gauze and left undisturbed until the patient is upon the table and anæsthetized.

Just prior to shortening the round ligaments the uterus is always curetted, and whatever plastic work upon cervix, vagina, and perinæum the conditions presenting in each case call for is performed. If adhesions of the uterus and annexa exist, and the operator prefers to sever these adhesions by anterior or posterior colpotomy rather than by an incision from above, this is the proper time to do so. At all events, the operator must satisfy himself that the uterus can be well anteverted by *bimanual manipulation* before proceeding with the operation of shortening the round ligaments. The uterus is then allowed to assume any position it may please, generally dropping backward, to be brought into position at a later stage of the operation by traction on the round ligaments. A little iodoform gauze is loosely placed in the vagina, not to sustain the uterus, but as an antiseptic precaution in view of the preceding curettage. The field of operation is lathered and scrubbed with more ten-per-cent. creolin-mollin, rinsed clean with sublimate solution (1 to 3,000), and the patient is ready for operation. In shortening the round ligaments I prefer to have the pelvis slightly elevated and to stand at the right side of my patient, beginning the operation upon the left ligament.

An incision five to six centimetres long, and nearly parallel to Poupart's ligament, is carried from the site of the internal inguinal ring downward and inward, terminating just within the spine of the pubis. Careful location of the pubic spine, from the time of beginning the operation until the anterior wall of the inguinal canal is opened, is absolutely essential to success. The subcutaneous fat is divided until the glistening aponeurosis of the external oblique muscle is exposed. The superficial epigastric artery is frequently divided, and if so should be ligated in this stage of the operation. The external inguinal ring is now either exposed to view or located by the touch. A grooved director is inserted through the external ring and passed along the inguinal canal, directly behind the aponeurosis of the external oblique, until its point is over the site of the internal ring. Cutting upon the director exactly in the direction of the fibers of the external oblique aponeurosis, one sweep of

the knife lays open the anterior wall of the inguinal canal along its whole length (Fig. 1).

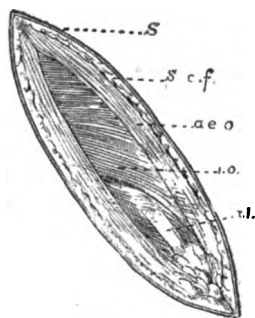


FIG. 1.

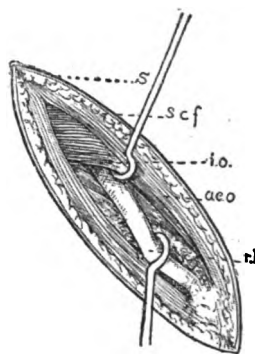


FIG. 2.

FIG. 1.—Incision, 5 centimetres long, through aponeurosis of external oblique, laying open inguinal canal from external to internal ring and exposing internal oblique muscle and round ligament. The ligament is more or less concealed according to greater or less development of internal oblique. *S.*, skin; *s. c. f.*, subcutaneous fat; *a. e. o.*, aponeurosis of external oblique; *i. o.*, internal oblique; *r. l.*, round ligament.

FIG. 2.—Isolating round ligament from its attachments in inguinal canal. *S.*, skin; *s. c. f.*, subcutaneous fat; *i. o.*, internal oblique; *a. e. o.*, aponeurosis of external oblique; *r. l.*, round ligament.

It is very desirable that all hæmorrhage should be controlled before opening the inguinal canal, otherwise the flow of blood into the latter may render differentiation of the round ligament from the other contents of the canal exceedingly difficult. An assistant exposes the contents of the canal by drawing apart the lips of the incision through the external oblique aponeurosis, with the aid of tenacula, blunt hooks, or clamp forceps. The lower fibers of the internal oblique muscle are seen crossing the upper half of the canal, filling it more or less, according to the greater or less muscular development of the individual.

In a fair proportion of cases the lower end of the round ligament is at once exposed to view, emerging from beneath the lower border of the internal oblique; more generally, the round ligament is well covered and entirely hidden from view by the internal oblique muscle and an investment of fatty, areolar, and fibrous tissue. Quite frequently some of the fibers of the round ligament are so closely interlaced with those of the internal oblique muscle that differentiation and separation of the ligament from bundles of muscular fiber becomes difficult. It is this part of the operation which generally

trips the beginner; he fails to find the ligament, and can not, of course, proceed. Experience has taught me that the best method of procedure at this stage, if the ligaments are not at once exposed to view and recognized, is to search for them in the following manner (Fig. 2): Retract the internal oblique muscle upward and inward by a blunt hook passed beneath its lowermost fibers, and hand this hook to your assistant. Take two small blunt hooks, one in either hand, and sweep one of them, point downward and outward, along the posterior and outer walls of the canal from the depths of the wound skinward, hooking up the entire contents of the canal. By teasing these contents apart more or less, as required, by means of the two blunt hooks, the round ligament, surrounded by fat and muscular and tendinous fibers from the internal oblique, and accompanied by the ilio-inguinal nerve, will soon be recognized, and can be followed along the canal to the internal ring. There the round ligament is always strong, however weak, thin, and frayed-out it may have been found lower down in the canal or at the external ring.

The ligament is next separated from its investments in the canal, leaving, however, the pubic end attached for the present. In this part of the operation great care should be exercised not to divide or tear the ilio-inguinal nerve which accompanies the ligament, and division of which is the cause of the various dysæsthesiæ in the vicinity of the scar sometimes complained of by patients after operation. In the canal itself the ilio-inguinal nerve and the round ligament are very intimately connected; at the upper end of the canal they diverge, the nerve to pass between the muscular layers and the ligament to enter the internal ring.

The ligament, freed from its surroundings in the canal, is next grasped by the thumb and forefinger of the right hand and cautiously drawn out at the internal ring (Fig. 3). The line of traction should be more or less perpendicular to the surface of the abdomen at that point, approximately in the direction of the intra-abdominal portion of the ligament. As the round ligament emerges at the internal ring it is seen to carry with it, in the form of an inverted cone, the investing peritonæum of the broad ligament, the point of reflection of the latter being marked by a distinct white line surrounding the round ligament. With the thumb and forefinger of the left hand the investing peritonæum is stripped or milked back into the abdomen as the round ligament emerges farther and farther

from the internal ring. Occasionally the peritonæum tears in stripping it back; this is a matter of no consequence provided the asepsis is all it should be.

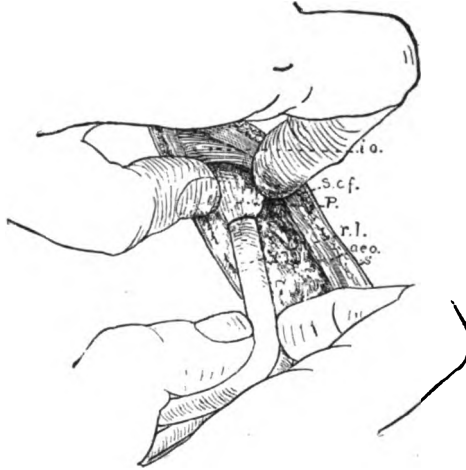


FIG. 3.—Drawing round ligament out of abdomen and stripping back investing peritonæum of broad ligament. *i. o.*, internal oblique; *s. c. f.*, subcutaneous fat; *P.*, peritonæum; *r. l.*, round ligament; *a. e. o.*, aponeurosis of external oblique; *S.*, skin.

Should the ligament not run freely out of the abdomen, it will be wise, before employing the limit of safe traction force, to ascertain the cause by incising the peritonæum at the internal ring, bluntly dilating the latter, and passing a finger into the abdomen. If posterior adhesions prevent the uterus, tubes, and ovaries from coming freely forward, these may be separated by a finger or two hooked behind the broad ligament; or if the infundibulo-pelvic ligament, as obtained in one of the writer's cases, be shortened and thickened as the result of previous inflammation, this ligament may be stretched. The round ligaments will then be found to run freely, and the process of stripping back the peritonæum is continued until the index finger, passed down to the bottom of the wound, recognizes the impact of the cornu uteri at the internal ring when traction is made upon the round ligament. This constitutes the writer's index to the proper amount of shortening, which, expressed in figures, will average about ten centimetres.

The opposite round ligament is now sought, isolated, and drawn out in the same way. When free play of both ligaments has been

secured, the anteposed fundus of the uterus may be drawn from side to side by alternating traction upon the ligaments, the movements of the fundus being recognized by the operator's fingers placed on the abdomen immediately above the pubis. In thin persons the transits of the uterus are frequently visible to the eye.

The proper course to pursue in case the round ligament should tear either in the canal or within the abdomen, as well as in cases of absence of the round ligament from the canal, has already been indicated.

Our next care is to properly reanchor the ligaments and close the wound. Thus far the ligaments have remained attached at their outer or pubic ends. These attachments are now cut for convenience in further manipulation, without, however, amputating any part of the ligament at present. After securing the desired position of the uterus by traction upon the round ligaments, and adjusting the latter nicely along the bottom of the canal, suture of the wound is in order.

The writer's suture material for the deep parts consists of catgut No. 0, chromicized to resist absorption for about six weeks. Those who may be interested in the method of preparation and sterilization of forty-day catgut are referred to an article by the writer in the *American Gyn. and Obst. Jour.*, May, 1896, entitled What is the Best Method of making and of closing the Cœliotomy Incision? A half-metre length of this forty-day catgut is threaded upon a full-curved Hagedorn needle of medium size or under. An assistant, with two tenacula, holds wide open the lips of the incision through the aponeurosis of the external oblique, so as to clearly expose the deep parts of the canal, and especially the clean-cut projecting shelf of Poupart's ligament.

The parts are brought together after the principle of Bassini's operation for the radical cure of inguinal hernia, with the exception that, instead of the interrupted suture, the buried running suture of forty-day catgut, applied according to the following technics, is used: Beginning at the upper angle and inner side of the right wound, the first sweep of the needle pierces the aponeurosis of the external oblique, the underlying internal oblique and transversalis muscles, the margins of the internal ring, the round ligament as it emerges between them, and the projecting shelf of Poupart's ligament. The succeeding loops of the deep tier of sutures, three or four in number, pierce the internal oblique and transversalis mus-

cles, the round ligament, and Poupart's ligament. The last loop, in addition, penetrates the outer pillar of the external ring, and emerges upon the outer surface of the external oblique aponeurosis

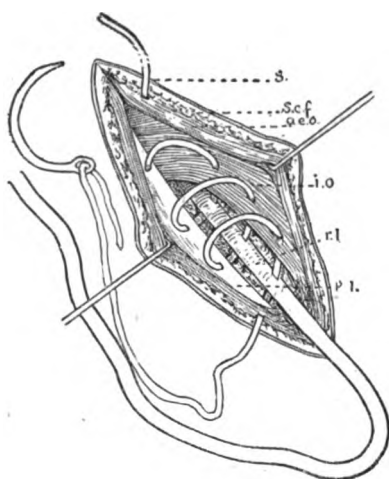


FIG. 4.

FIG. 4.—Deep tier of buried running suture of forty-day catgut, embracing internal oblique and transversalis muscles, round ligament and Poupart's ligament. Deep part of uppermost loop of suture (not showing in cut) passes at level of and embraces margins of internal ring. *S.*, skin; *s. c. f.*, subcutaneous fat; *a. e. o.*, aponeurosis of external oblique; *i. o.*, internal oblique; *r. l.*, round ligament; *P. l.*, Poupart's ligament.

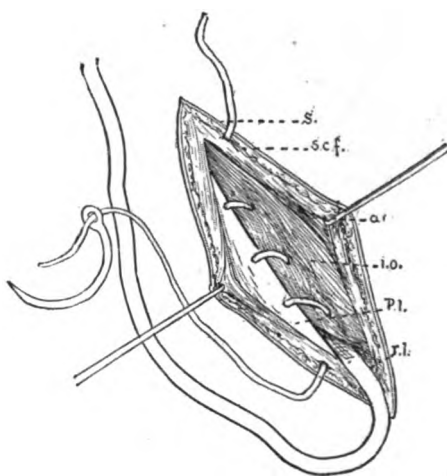


FIG. 5.

FIG. 5.—Deep tier of suture drawn home, obliterating inguinal canal. *S.*, skin; *s. c. f.*, subcutaneous fat; *a. e. o.*, aponeurosis of external oblique; *i. o.*, internal oblique; *P. l.*, Poupart's ligament.

at the lower end and outer side of the fascial wound (Figs. 4 and 5). A stitch is then taken, with still the same strand of catgut, piercing the internal pillar of external ring, round ligament, and external pillar. The excess of round ligament is now cut away just outside of the external ring, leaving the stump to plug the ring (Fig. 6).

After thus obliterating the inguinal canal and closing both internal and external rings, the same strand of catgut is continued upward as a running suture, uniting the lips of the incision in the external oblique aponeurosis and closing the anterior wall of the canal. At the upper end of the wound the two free ends of catgut emerging upon the aponeurosis of the external oblique are tied together, forming the only buried knot. This knot, if carefully and *tightly* tied after the manner depicted in the cut—a single turn in

the first half and a double turn in the second half of the knot—can be depended upon not to slip. The skin is nicely approximated over all by a subcutaneous suture of ordinary catgut and the wound closed without drainage. Sterilized dressings applied over the wounds, and held in place by adhesive plaster and a double spica bandage, complete the operation.

The dressing is changed, for the sake of cleanliness, at the end of a week. This second dressing is removed a week later, and the patient allowed to sit up. No pessary or support of any kind is worn at any time after operation.

Interference with the function of the bladder as a result of the operation has not been observed in the writer's cases. The urine is generally drawn for two days, after which it is voided on the bed-pan.

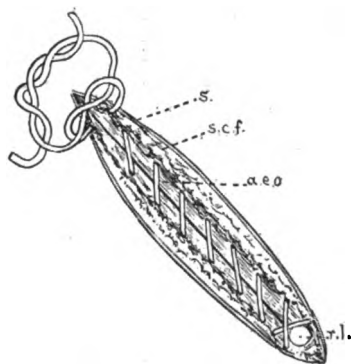


FIG. 6.—Superficial tier of buried suture of forty-day catgut closing incision through aponeurosis of external oblique, restoring anterior wall of canal. The excess of round ligament has been cut away just outside of external ring. The part protruding through ring together with pillars of external ring pierced by lowest loop of superficial suture. Loose knot at upper end shows proper way of tying buried catgut knot to prevent slipping. Skin and fat to be closed over all by a subcutaneous catgut suture.

Primary union has been the rule, except during a brief period of repeated deep suppuration from infected silkworm gut, which material we were using at the time in the form of buried sutures. In cases of primary union the scar becomes practically invisible after six months to a year.

In three of my last cases an attempt was made to complete the operation rapidly. The time required for these three operations, from the first incision to the completed closure of both wounds, was nineteen, twenty-one, and twenty minutes respectively.

TABLE OF AUTHOR'S OPERATIONS FOR SHORTENING THE ROUND LIGAMENTS.

No.	Name.	Age.	Condi- tion.	No. of children	Pathological conditions.	Date of operation.	Additional operations.	Result and remarks.
1	M. A.	20	Single.	..	Retroversion of uterus. Prolapse of left ovary.	29-xii-89	15-viii-93: Curettage of uterus.	25-vii-96: Uterus in normal anteversion. No prolapse of ovaries. Patient remains perfectly well.
2	L. R.	22	Single.	..	Retroversion of uterus.	31-xii-89	.....	vi-93: Uterus in excellent anteversion.
3	B. S.	45	Married.	3	Complete prolapsus uteri et vaginæ.	1-ii-90	17-iii-90: Anterior colporrhaphy. Col- po-perineorrhaphy.	21-iv-90: Uterus well up in pelvis and an- teverted. No prolapsus vaginæ.
4	L. S.	30	Married.	2	Retroversion of uterus. Movable right kidney.	3-ii-90	vii-92: Nephropexy.	27-vii-96: Uterus in normal anteversion.
5	K. W.	43	Married.	2	Complete prolapsus uteri et vaginæ. Laceration and hypertrophy of cer- vix.	19-ii-90	At same sitting: Am- putation of cervix. Colpo - perineorha- phy.	19-iv-93: Uterus well up in pelvis and an- teverted. Perfectly well with exception of moderate cystocele.
6	B. W.	29	Single.	..	Retroversion of ante- flexed uterus.	24-ii-90	.....	24-ii-92: Uterus in normal anteversion, the angle of flexion having disappeared.
7	M. P.	44	Married.	8	Complete prolapsus uteri et vaginæ. Laceration and hypertrophy of cer- vix.	5-iii-90	At same sitting: Am- putation of cervix. Colpo - perineorha- phy.	28-iv-96: Has remained perfectly cured of prolapsus. Uterus well up in pelvis and anteverted.
8	A. B.	41	Widow.	4	Prolapsus uteri, first de- gree, with retroversion. Laceration of cervix and perinæum. Cysto- cele and rectocele.	24-iii-90	3-xii-89: Trachelor- rhaphy. Anterior colporrhaphy. Col- po-perineorrhaphy.	7-v-90: Prolapsus of vaginal walls cured. Uterus well up in pelvis and anteverted.
9	L. H.	57	Married.	3	Prolapsus and retrover- sion of uterus, both first degree. Moderate cystocele and rectocele.	9-v-90	.....	28-vi-93: Uterus well up in pelvis and anteverted. No increase of cystocele and rectocele.
10	A. Le B.	37	Married.	5	Laceration of cervix. Retroversion of uterus. Movable right kidney.	19-v-90	At same sitting: Tra- chelorrhaphy. 12- vi-90: Nephropexy.	12-vii-90: Uterus in normal anteversion.

11	J. M.	38	Married.	4	Laceration of cervix and perineum. Rectocele. Retroversion of uterus. Hemorrhoids.	21-v-90	At same sitting: Tra-chelorrhaphy. Col-po-perineorrhaphy.	Delivered, 11-ii-92, of full-grown child. Delivered, 12-i-94, of full-grown child. Uterus in normal anteversion after both deliveries. Normal labors. vii-96: Pregnant seven months; third pregnancy since operation. 28-vii-90: Uterus in normal anteversion.
12	M. S.	24	Married.	2	Chronic metritis. Laceration of cervix and perineum. Retroversion of uterus.	28-v-90	At same sitting: Tra-chelorrhaphy. Perineorrhaphy.	9-v-92: Normal delivery of living child at term, without complications. Development of right inguinal hernia during fifth month of this pregnancy, and of left inguinal hernia soon after delivery. Jan., 1896: Double inguinal hernia. Uterus in anteversion.
13	S. K.	20	Single.	..	Retroversion of uterus. Endometritis.	12-vi-90	.....	July, 1896: Pregnant six months. Uterus in normal anteversion six months after operation.
14	A. Q.	33	Married.	5	Retroversion of uterus. Laceration of cervix and perineum.	19-ix-90	At same sitting: Tra-chelorrhaphy. 9-x-90: Perineorrhaphy.	Uterus in normal anteversion on discharge one month after operation.
15	M. D.	25	Married.	2	Retroversion of uterus. Chronic metritis.	6-xi-90	At same sitting: Amputation of cervix.	Failure to find ligament on left side. Not attempted on right. Failure of operation to cure, the retroversion and prolapse returning promptly after patient left bed.
16	C. A.	44	Married.	10	Prolapsus and retroversion of uterus, first degree. Prolapsus vaginae.	18-xi-90	At same sitting: Tra-chelorrhaphy. Anterior colporrhaphy. Colpo-perineorrhaphy.	Uterus well anteverted on leaving hospital one month after operation. No prolapsus of vaginal walls.
17	S. McM.	52	Widow.	1	Retroversion of uterus. Laceration of perineum. Cystocele.	19-xii-90	20-xi-90: Anterior colporrhaphy. Col-po-perineorrhaphy.	27-vi-93: Uterus in normal anteversion. Perfectly well ever since operation.
18	N. H.	23	Single.	..	Retroflexion of uterus. Chronic metritis.	19-xii-90	.....	28-vi-93: Uterus in normal anteversion, limited in mobility. Patient not better than before operation owing to development of bilateral salpingo-oöphoritis since operation.
19	M. K.	32	Single.	..	Retroversion of uterus. Chronic endometritis.	7-iii-91	.....

No.	Name.	Age.	Condi- tion.	No. of children.	Pathological conditions.	Date of operation.	Additional operations.	Result and remarks.
20	A. M.	31	Married.	1	Subinvolution and retro- flexion of uterus.	11-iv-91	Curettage of uterus.	1-vii-92: Delivered of a child at term, without complications. 3-viii-93: Uterus in normal anteversion. No pelvic symptoms. Patient died of pulmonary phthisis in 1894. 22-vii-95: Uterus in anteversion. Left ovarian cystoma and movable right kid- ney have developed since operation. Pa- tient no better than before operation. On discharge, one month after operation uterus in normal anteversion. Not seen since.
21	M. G.	17	Single.	..	Retroversion of uterus. Pro- Endometritis. lapse of ovaries.	13-v-91	Curettage of uterus.	
22	P. K.	22	Single.	..	Retroversion of uterus.	20-v-91	.....
23	A. K.	20	Single.	..	Retroversion of uterus. Catar- Endometritis. rhal salpingitis.	17-vi-91	27-ii-93: Curettage of uterus.	Salpingitis and movable right kidney devel- oped subsequently to shortening of round ligaments and nullified therapeutic results.
24	D. N.	25	Widow.	..	Retroversion of uterus. Laceration of cervix.	5-ix-91	At same sitting: Tra- achelorrhaphy.	27-v-93: Uterus in normal anteversion. Uterus in normal anteversion one month after operation. Not seen since.
25	A. F.	31	Married.	..	Retroversio uteri fixati. Pelvi-peritonitis chron- ica.	17-x-91	12-x-91: Curettage of uterus and separation of adhesions in nar- cosis after Schultze.	Patient writes that according to a state- ment of her physician, in July, 1895, her womb remains in anteversion.
26	J. M.	23	Single.	..	Retroversio of uterus. Prolapse of ovaries.	18-xi-91	Curettage of uterus at same sitting. 3-v- 92: Salpingo-opho- rectomy for uterine fibroma, and curet- tage of uterus.	Fibromata uteri developed after operation. Uterus remained continuously in normal anteversion until last seen, 19-iii-95.
27	C. V.	29	Married.	2	Retroversion of uterus. Laceration of cervix. Endometritis. Catar- rhal salpingitis.	30-xi-91	At same sitting: Cu- rettage of uterus. Amputation of cer- vix.	Patient remained well for some six months after operation. Then acute prolapsus uteri, cured by tampons and supports. Later left chronic salpingo-ophoritis nullified therapeutic results. 10-vii-96: Uterus in excellent anteversion. Descensus of first degree on straining.

28	M. W.	28	Married.	3	Retroversion of uterus. Laceration of cervix. Endometritis.	11-xii-91	At same sitting: Curettage of uterus. Amputation of cervix. 13-iii-96: Right nephropexy.	Felt well for several years after operation; then symptoms of movable right kidney. Uterus remains in normal anteversion.
29	M. S.	23	Single	..	Retroversion of uterus. Prolapse of ovaries. Catarrhal salpingitis. Lues acquisita.	22-xii-91	Curettage of uterus.	Therapeutic results nullified by the progressive development of extensive syphilitic visceral lesions within a year after operation. The uterus remained in normal anteversion until her death. 19-xi-95.
30	C. R.	28	Married.	3	Subinvolution and retroversion of uterus.	15-i-92	At same sitting: Curettage of uterus. Amputation of cervix.	Uterus in normal anteversion six weeks after operation. Not seen since.
31	M. S.	25	Married.	1	Retroversion and subinvolution of uterus. Laceration of cervix. Laceration of perineum through sphincter.	19-i-92	At same sitting: Curettage of uterus. Amputation of cervix. Perineorrhaphy. Ventral fixation of uterus.	Right round ligament in final pull thereon drawn out of uterus as demonstrated at the immediately added ventral fixation. No operation upon left side. Ventral fixation holds uterus anteverted four and a half years after operation.
32	M. B.	23	Widow.	1	Retroversion of uterus, second degree. Prolapse of uterus, first degree. Chronic metritis. Mitral insufficiency and aortic stenosis.	22-i-92	At same sitting, without anaesthesia: Curettage of uterus. Amputation of cervix.	Shortening of round ligaments under local cocaine anaesthesia.
33	K. S.	26	Married.	..	Retroversion of uterus. Endometritis. Prolapsed and adherent right ovary.	2-ii-92	Curettage of uterus.	28-iv-92: Uterus in normal anteversion and at proper height in pelvis. Therapeutic results impaired by progressive left salpingo-oöphoritis.
34	C. H.	30	Married.	4	Retroversion of uterus. Laceration of cervix.	5-ii-92	At same sitting: Curettage of uterus. Amputation of cervix.	Ether pneumonia after operation. 8-vii-96: Uterus in normal anteversion. Chronic metritis and adhesion of right ovary impair somewhat the therapeutic result. 3-v-94: Uterus in normal anteversion. Perfect anatomical and therapeutic results.

No.	Name.	Age.	Condi- tion.	Sex and Mar- ried.	Pathological conditions.	Date of operation.	Additional operations.	Result and remarks.
35	M. F.	30	Married.	3	Retroversion of uterus. Laceration of cervix and perineum.	22-iii-92	At same sitting: Cu- rettage of uterus. Amputation of cer- vix. Perineorrhaphy. 3-vii-95: Curettage with drainage of uterus.	20-x-95: Uterus in normal anteversion. Felt perfectly well until three years after operation, when endometritis, salpingitis, and movable right kidney impaired thera- peutic results.
36	A. H.	27	Married.	1	Retroversion of uterus. Laceration of cervix. Pro- lapse of ovaries. Endometritis.	19-iv-92	At same sitting: Cu- rettage of uterus. Amputation of cer- vix.	26-vii-92: Uterus in normal anteversion.
37	A. B.	25	Single.	..	Retroversion of uterus. Endometritis. Catarrh- al salpingitis. Movable right kidney.	10-v-92	At same sitting: Cu- rettage of uterus. Nephroexy.	10-vii-92: Uterus in normal anteversion. 12-vii-93: Has remained perfectly well since operation. Pelvic examination not made.
38	P. K.	30	Married.	..	Retroversion of uterus. Endometritis.	10-v-92	Curettage of uterus.	Delivered of a full-grown boy at term in March, 1895.
39	M. K.	35	Married.	3	Adherent retroverted uterus. Laceration of cervix and perineum. Chronic metritis. Cys- toma of right ovary. Movable right kidney. Mitral insufficiency.	17-v-92	At same sitting: Cu- rettage of uterus. Amputation of cer- vix. Ovariectomy. Ventral fixation of uterus. 18-xi-92: Peri- neorrhaphy.	23-vii-96: Uterus in normal anteversion. Patient enjoying perfect health. After isolating and drawing out both round ligaments, the right ligament, at the final pull, tore out of uterus as verified at the immediately following ventral fixation. Cause of the accident, a small, unrecog- nized, adherent right ovarian cystoma. 28-ii-94: Sudden death, while at work, from valvular disease of heart, on the eve of confinement at term. (Case reported in full, <i>Trans. New York Obst. Soc.</i> , Nov. 21, 1893, and April 17, 1894.)

40	A. M.	28	Married.	2	Retroversion of uterus. Laceration of cervix. Endometritis. Mov- able right kidney.	3-vi-92	At same sitting: Cu- rettage of uterus. Amputation of cer- vix.	Uterus in normal anteversion one month after operation. Not seen since.
41	A. B.	24	Single.	..	Retroversion of uterus. Endometritis.	17-vi-92	Curettag of uterus.	Passed through a severe attack of typhus abdominalis beginning two weeks after operation. 22-vi-93: Uterus in normal anteversion. Typhoid fever during convalescence. Movable right and left kidneys followed the typhoid fever.
42	A. H.	17	Single.	..	Retroversion of uterus. Endometritis.	22-vii-92	Curettag of uterus. 11-vii-93: Right nephropexy. 15-iv- 95: Right femoral herniotomy. 6-xii- 95: Cœliotomy for acute gangrenous ap- pendicitis. Right salpingo-oöphorectom- y. 7-i-96: Left nephropexy.	Acute strangulated right femoral hernia, April, 1893. Acute appendicitis with perforation, periap- pendicular abscess and serious involve- ment of right tube and ovary, Dec., 1895. 22-vii-96: Uterus in normal anteversion. Patient perfectly well.
43	M. S.	35	Married.	4	Retroversion of uterus. Laceration of cervix and perinæum. Rec- tocele.	28-x-92	At same sitting: Cu- rettage of uterus. Trachelorrhaphy. Colpo - perineorrhaphy.	28-vi-93: Uterus in anteversion.
44	L. S.	32	Married.	1	Adherent retroverted uterus. Laceration of cervix. Endometritis.	8-xi-92	At same sitting: Sepa- ration of uterine ad- hesions in narcosis after Schultze. Cu- rettage of uterus. Trachelorrhaphy.	Uterus in normal anteversion three months after operation. Not seen since.
45	R. S.	36	Married.	6	Retroversion of uterus. Laceration of cervix. Endometritis.	8-xi-92	At same sitting: Cu- rettage of uterus. Amputation of cer- vix. 16-xii-92: Hys- tero-salpingo-oöpho- rectomy by com- bined perineotomy and cœliotomy for sarcoma of left broad ligament.	Uterus remained in normal anteversion un- til removed together with the tubes, ovaries, and entire left broad ligament by combined perineotomy and cœliotomy for sarcoma of left broad ligament, 10- xii-92. (Case reported in detail, <i>Trans. New York Obst. Soc.</i> , March 21, 1893, and March 17, 1896.)

No.	Name.	Age.	Condi- tion.	No. of children	Pathological conditions.	Date of operation.	Additional operations.	Result and remarks.
46	A. W.	25	Married.	3	Retroversio uteri. Lac- eration of cervix and perinæum. Left in- guinal hernia.	25-x-92	At same sitting: Cu- rettage of uterus. Amputation of cer- vix. Anterior col- porrhaphy. Perine- orrhaphy. Radical inguinal herniotomy. Curettag of uterus.	21-vi-93: Miscarriage at end of third month. Thereafter uterus in normal an- teversion. 20-ii-94: Pregnant seven months.
47	A. H.	19	Single.	..	Retroversion of uterus. Endometritis.	29-x-92	Curettag of uterus.	9-xii-93: Uterus in normal anteversion. Endometritis for past two months.
48	A. W.	28	Married.	1	Retroversion of uterus. Laceration of cervix. Endometritis.	13-xii-92	At same sitting: Cu- rettage of uterus. Amputation of cer- vix.	2-vii-96: Uterus in normal anteversion. Perfectly well for three years after oper- ation, when mobility of both kidneys de- veloped, from the symptoms of which she now suffers.
49	A. B.	25	Married.	2	Retroversion of uterus. Laceration of cervix and perinæum. Endo- metritis. Cystocele.	3-i-93	At same sitting: Cu- rettage of uterus. Anterior colporrha- phy. Perineorrhaphy. Ventral fixation of uterus.	Right round ligament pulled out of uterus after both ligaments had been found and drawn out. Ventral fixation immediately added. Three pregnancies since opera- tion. Delivery at term, without complications. 11-xii-93. Abortus, 10-vii-95. Now, vii-96, pregnant eight months. (Case detailed in <i>Trans. New York Obst. Soc.</i> , April 17, 1894.)
50	J. D.	20	Married.	1	Retroversion and subin- volution of uterus. Lac- eration of cervix and perinæum. Endome- tritis. Urethral polypi.	17-i-93	At same sitting: Cu- rettage of uterus. Amputation of cer- vix. Perineorrhaphy. Excision of urethral polypi. Curettag of uterus.	One month after operation uterus in normal anteversion. Not seen since.
51	S. H.	22	Single.	1	Retroversion of uterus. Endometritis.	10-ii-93	Curettag of uterus.	Uterus in normal anteversion one month after operation. Not seen since.

52	A. V.	21	Married.	I	Retroversion of uterus. Laceration of cervix. Endometritis.	10-iii-93	At same sitting: Curet- tage of uterus. Trachelorrhaphy.	Uterus in normal anteversion when last seen, three months after operation.
53	L. S.	33	Widow.	5	Retroversion of uterus. Laceration of cervix and perineum. Endo- metritis.	14-iii-93	At same sitting: Cu- retage of uterus. Trachelorrhaphy. Perineorrhaphy.	12-vii-93: Feels perfectly well. Uterus in normal anteversion.
54	M. B.	22	Single.	..	Retroversion of uterus. Endometritis.	21-iv-93	Curetage of uterus.	Uterus in normal anteversion six weeks after operation. Not seen since.
55	T. W.	37	Widow.	I	Retroversion of uterus. Endometritis.	25-iv-93	Curetage of uterus.	Uterus in normal anteversion one month after operation. Not seen since.
56	M. H.	22	Single.	..	Retroversion of uterus. Endometritis.	28-iv-93	Curetage of uterus.	Right round ligament, after leaving the in- ternal ring, ran upward and outward to be inserted into outer half of Poupert's ligament. 24-iv-94: Uterus in normal anteversion. Therapeutic result excellent until two weeks ago, since when acute oöphoritis sinistra.
57	M. K.	34	Married.	5	Retroflexion of uterus. Laceration of cervix and perineum. Mitral insufficiency.	23-v-93	21-iv-93: Curettag of uterus. Amputation of cervix. Perineor- rhaphy.	Uterus in normal anteversion ten weeks after operation, when last seen.
58	D. M.	17	Single.	..	Retroversion of uterus. Endometritis.	13-vi-93	Curetage of uterus.	Felt perfectly well until fifteen months after operation. Then acute articular rheumatism and endocarditis.
59	M. M.	24	Married.	I	Retroversion of uterus. Laceration of cervix. Endometritis.	20-vi-93	At same sitting: Cu- retage of uterus. Trachelorrhaphy.	14-x-94: Uterus in normal anteversion. 10-vii-96: Uterus in normal anteversion. Therapeutic result good until recently, when impaired by development of mova- ble right kidney and recurrence of en- dometritis.
60	B. W.	21	Single.	..	Retroversion of uterus. Endometritis.	27-vi-93	Curetage of uterus.	9-vii-96: Patient has "felt splendid" ever since operation. Uterus in normal ante- version.

No.	Name.	Age.	Condi- tion.	No. of children.	Pathological conditions.	Date of operation.	Additional operations.	Result and remarks.
61	J. B.	25	Single.	..	Retroversion of uterus. Endometritis. Bilat- eral inguinal hernia.	18-vii-93	At same sitting: Cu- rettage of uterus. Double radical in- guinal herniotomy.	Patient irresponsible mentally; repeatedly removed her wound dressing. Suppura- tion and sloughing in both wounds. 26-iv-94: Uterus in normal anteversion. Left hernia recurred six months after op- eration. Right hernia remains cured.
62	M. D.	25	Married.	3	Retroversion of uterus. Laceration of cervix and perineum. Endo- metritis. Cystocele.	15-viii-93	At same sitting: Cu- rettage of uterus. Amputation of cer- vix. Anterior col- porrhaphy. Perine- orrhaphy.	25-vii-96: Uterus in normal anteversion. Patient well except for symptoms due to mobility of both kidneys existing before operation. Bilateral nephropexy advised.
63	M. H.	23	Single.	..	Retroversion of uterus. Endometritis.	7-xi-93	Curettage of uterus.	30-vi-96: Uterus in normal anteversion. Therapeutic results excellent until within three months past, since which time de- velopment of movable right kidney.
64	C. L.	27	Married.	..	Retroversion of uterus. Endometritis.	23-xi-93	Curettage of uterus.	1-vii-96: Anatomical and therapeutical re- sults excellent. Uterus in normal ante- version.
65	A. E.	31	Married.	1	Retroversion of uterus. Laceration of cervix. Endometritis.	9-I-94	At same sitting: Cu- rettage of uterus. Trachelorrhaphy.	Patient widowed one month after operation. 10-vii-96: Anatomical and therapeutic re- sults excellent. Uterus in normal ante- version.
66	L. H.	21	Married.	1	Retroversion of uterus. Endometritis.	17-i-94	Curettage of uterus.	Uterus in normal anteversion one month after operation. Not seen since.
67	N. T.	29	Single.	..	Retroversion of uterus. Pro- lapse of ovaries. Oo- phoritis dextra.	22-i-94	Curettage of uterus.	Delivery at term, without difficulty, 2-xi-95. 27-vii-96: Uterus in normal anteversion. Both ovaries and all pelvic contents nor- mal. Patient perfectly well.
68	M. A.	28	Widow.	1	Retroversion of uterus. Laceration of cervix and perineum. Endo- metritis. Rectocele.	23-I-94	At same sitting: Cu- rettage of uterus. Amputation of cer- vix. Perineorrhaphy.	Uterus in normal anteversion seven weeks after operation, when patient was last seen.

69	A. M.	23	Single.	..	Anteflexion of uterus. Chronic endometritis of cervix. Movable right kidney.	9-iii-94	At same sitting: Cu- rettage of uterus. Amputation of cer- vix. 15-vi-94: Ne- phropexy.	28-vi-96: Anteflexion has entirely disap- peared, the uterus lying in normal ante- version. Patient perfectly well.
70	E. S.	26	Married.	..	Retroversio uteri. En- dometritis. Catarrhal salpingitis. Tubercu- losis of appendix vermi- formis.	30-iii-94	At same sitting: Cu- rettage of uterus. Appendectomy.	Ligaments sloughed in both wounds. Six weeks after operation position of uterus unsatisfactory, not sufficiently well ante- verted, rather vertical in body. Insanity Very hysterical before operation. Sudden (hereditary taint) followed operation. Sudden death from fatty heart, 22-viii- 94, nearly five months after operation. Autopsy showed the uterus again fully re- verted.
71	A. B.	29	Married.	4	Retroversion of uterus. Laceration of cervix. Chronic metritis. Mov- able right kidney. Right inguinal hernia. Right femoral hernia.	4-v-94	At same sitting: Cu- rettage of uterus. Amputation of cer- vix. Radical femoral herniotomy. Radical inguinal herniotomy.	23-i-96: Patient pregnant two months. Right inguinal hernia has returned. Femoral hernia remains cured. Uterus in normal anteversion. 1-vii-96: Patient eight months pregnant without inconvenience. Dr. H. J. Boldt Therapeutic success nil. Dr. H. J. Boldt subsequently performed vaginal bilateral salpingo-oophorectomy, after which pa- tient reports herself well. 20-vii-94: Dr. Boldt writes me that the uterus remains anteverted and well up in pelvis.
72	L. M.	33	Married.	3	Retroversion of uterus. Laceration of cervix. Prolapse of ovaries. Endometritis. Salpin- gitis.	8-v-94	20-vii-93: Curettage of uterus. Amputa- tion of cervix.	Uterus in normal anteversion one month after operation, when last seen.
73	S. R.	20	Single.	..	Imperfect development of internal genitalia. Retroversion of uterus. Endometritis.	12-vi-94	12-i-92: Curettage of uterus. Bilateral dis- section of cervix. 12- vi-94: Curettage of uterus. Amputation of cervix.	

No.	Name.	Age.	Condi- tion.	No. of children	Pathological conditions.	Date of operation.	Additional operations.	Result and remarks.
74	A. H.	26	Single.	1	Movable right kidney. Retroversion of uterus. Laceration of cervix. Endometritis. Right and left inguinal her- nia.	13-vi-94	17-i-94: Nephropexy. 13-vii-94: Curetage of uterus. Trachelor- rhaphy. Bilateral radical inguinal her- niotomy. At same sitting: Cu- retage of uterus. Amputation of cer- vix. 21-xii-94: Bi- lateral nephropexy. 15-ii-95: Inversion of appendix.	14-iv-96: Uterus in normal anteversion. No return of either inguinal hernia. Pa- tient perfectly well.
75	J. McP.	21	Single.	1	Retroversion of uterus. Laceration of uterus. Chronic metritis. Mov- able right and left kid- neys. Chronic appen- dicitis.	2-x-94	25-i-94: Curetage of uterus. Amputation of cervix.	28-vi-96: Uterus in normal anteversion, still enlarged about 50 per cent. from persistence of chronic metritis.
76	S. M.	31	Married.	5	Retroversion of uterus. Laceration of cervix. Endometritis.	11-x-94	3-viii-94: Nephro- pexy. At same sit- ting: Curetage of uterus. Appendec- tomy.	28-i-95: Uterus in normal anteversion. Malaria and the development of movable right kidney since operation impair the therapeutic result.
77	E. F.	23	Single.	..	Movable right kidney. Retroversion of uterus. Endometritis. Catar- rhal salpingitis. Ap- pendicitis. Mitral in- sufficiency.	16-x-94	Curetage of uterus.	Uterus in normal anteversion one month after operation, since which patient not seen.
78	B. C.	25	Single.	..	Retroversion of uterus. Endometritis. Left sal- pingo-oöphoritis.	18-x-94	3-viii-94: Curetage of uterus. Trachelor- rhaphy. Perineor- rhaphy.	27-vi-96: Uterus in normal anteversion. No trace of former salpingo-oöphoritis. Patient perfectly well.
79	M. McC.	27	Married.	4	Laceration of cervix and perinæum. Endome- tritis. Retroversion of uterus.	19-x-94		Left ligament tore on final pull, one centi- metre from uterine insertion. Ventral fixation immediately added. Right groin not opened. 23-vi-96: Two pregnancies since opera- tion. First terminated in abortion in fourth month. Now pregnant in eighth month.

80	R. S.	18	Single.	..	Movable right kidney. Chronic appendicitis. Endometritis. Retroversion of uterus.	23-x-04	17-iv-04 : Nephropexy. 23-vi-04 : Appendectomy. At same sitting. Dilatation of sphincter ani.	Uterus in normal anteversion and patient perfectly well when last seen, five months after operation.
81	M. D.	18	Single.	..	Retroversion of uterus. Endometritis. Urethral polypi. Adherent prepuce of clitoris. Hemorrhoids.	2-xi-04	At same sitting : Curettage of uterus. Ablation of urethral polypi. Dilatation of sphincter ani. 27-xi-04 : Slitting of prepuce and separation of preputial adhesions. Excision of hemorrhoids.	21-vii-06 : Patient made a new woman by the operations. Subsequently slight relapse due to development of movable right kidney and recurrence of endometritis. Uterus in normal anteversion.
82	B. H.	20	Single.	..	Retroflexion of uterus. Endometritis. Chronic appendicitis. Incipient pneumo-phthisis.	16-xi-04	At same sitting : Curettage of uterus. Appendectomy.	25-vii-06 : Patient remains well. Uterus in normal anteversion.
83	A. M.	25	Single.	..	Adherent retroverted uterus. Endometritis.	25-xi-04	At same sitting : Curettage of uterus. Coeliotomy for liberation of uterine adhesions. Attempted ventral fixation of uterus. 25-iii-05 : Vaginal fixation of uterus.	Ventral fixation of uterus, after liberation of adhesions, was the operation proposed. It failed on account of inability to bring the fundus against anterior abdominal wall, due to thickening and inelasticity of parametria. Shortening of round ligaments immediately added. Severe acute croupous pneumonia and pneumococcus infection of three wounds. Sloughing of round ligaments and immediate anatomical failure. Four months later vaginal fixation of uterus with resultant imperfect anatomical but perfect therapeutic success. (Case detailed in <i>N. Y. Med. Monatsschrift</i> , July, 1896, p. 285.)

No.	Name.	Age.	Condi- tion.	No. of Children.	Pathological conditions.	Date of operation.	Additional operations.	Result and remarks.
84	B. K.	26	Married.	1	Retroversion of uterus. Laceration of cervix and perineum. Endo- metritis.	18-xii-94	At same sitting: Cu- rettage of uterus. Tra- chelorrhaphy. Peri- neorrhaphy. Ventral fixation of uterus. Curettag of uterus.	Left round ligament torn out of uterus at final pull. Ventral fixation. 10-vii-96: Patient has been perfectly well since operation. Fundus attached to an- terior abdominal wall. Uterus in normal anteversion when last seen, one month after operation.
85	A. W.	24	Single.	..	Retroversion of uterus. Endometritis.	8-xi-95	Curettag of uterus.	Uterus in normal anteversion when last seen, one month after operation.
86	L. McK.	20	Single.	..	Retroversion of uterus. Endometritis. Left sal- pingo-oöphoritis, with adhesions.	12-iii-95	At same sitting: Cu- rettage of uterus. Posterior colpotomy to liberate adherent left tube and ovary.	Uterus in normal anteversion, six weeks after operation, when last seen.
87	L. H.	22	Single.	..	Retroversio uteri. En- dometritis.	26-iii-95	Curettag of uterus.	Uterus in normal anteversion two months after operation, when last seen.
88	M. T.	39	Single.	..	Retroversio uteri. En- dometritis.	29-iii-95	Curettag of uterus.	Right ligament tore just within internal ring. Small median incision made, and by pass- ing finger through it into abdomen the uterus was lifted forward and the uterine half of round ligament was pushed out through right internal ring and sutured in the canal in the usual way. Uterus in normal anteversion when last seen, one month after operation.
89	L. K.	28	Married.	3	Retroversion of uterus. Laceration of cervix. Chronic metritis.	2-iv-95	At same sitting: Cu- rettage of uterus. Amputation of cer- vix.	7-vii-96: Uterus in normal anteversion, still very heavy. Therapeutic result marred by subsequent development of movable right kidney and chronic appen- dicitis
90	J. K.	25	Single.	..	Retroversion of uterus. Endometritis. Catarrh- al salpingitis. Movable right kidney. Proctitis catarrhalis.	18-iv-95	Curettag of uterus. 24-ii-96: Nephro- pexy. Dilatation of sphincter ani.	June, 1896: Uterus in normal anteversion. Therapeutic results excellent.

91	A. K.	22	Married.	1	Retroversion of uterus. Laceration of cervix. Endometritis.	30-iv-95	At same sitting: Curettage of uterus. Amputation of cervix.	Uterus in normal anteversion when last seen, six weeks after operation.
92	E. H.	24	Married.	1	Retroversion of uterus. Laceration of cervix. Endometritis. Catarrhal salpingitis.	7-v-95	At same sitting: Curettage of uterus. Amputation of cervix.	Neither ligament being found in canal, an incision was made in the median line and the ligaments traced from either cornu uteri outward. After passing through the internal inguinal ring each ligament ran upward and outward between the internal oblique and the transversalis to be inserted into the outer half of Poupart's ligament and the transversalis fascia as far outward as the anterior superior spine of the ilium. Both ligaments cut away above, brought down into canal and fastened in usual way. Uterus in normal anteversion when last seen, one month after operation.
93	S. G.	29	Single.	..	Retroversion of uterus. Endometritis.	21-vi-95	Curettage of uterus.	15-ii-96: Uterus in normal anteversion. Patient perfectly well.
94	M. C.	28	Single.	..	Retroversion of uterus. Laceration of cervix. Endometritis.	25-x-95	At same sitting: Curettage of uterus. Amputation of cervix.	Uterus in normal anteversion, one month after operation, when last seen. July, 1896, writes that she is well.
95	C. C.	33	Married.	1	Retroversion of uterus. Endometritis. Catarrhal salpingitis. Movable right kidney	6-xi-95	17-x-95: Curettage of uterus. Nephropexy.	Uterus in normal anteversion at last examination two months after operation. July, 1896, writes that she remains perfectly well.
96	M. W.	23	Married.	1	Retroversion of uterus. Laceration of cervix. Endometritis.	22-xi-95	At same sitting: Curettage of uterus. Amputation of cervix.	7-v-96: Uterus in normal anteversion. Therapeutic result marked by development of movable right and left kidneys since operation.
97	L. K.	32	Married.	1	Retroversion of uterus. Laceration of cervix. Endometritis. Movable right and left kidneys.	10-xii-95	At same sitting: Curettage of uterus. Amputation of cervix.	Twin pregnancy immediately after returning home. Abortion at end of third month, 3-iv-96. 1-vii-96: Uterus in normal anteversion. Patient well with exception of symptoms due to movable kidneys.

No.	Name.	Age.	Condi- tion.	No. of children.	Pathological conditions.	Date of operation.	Additional operations.	Result and remarks.
98	M. K.	31	Single.	..	Retroversion of uterus. Chronic metritis.	17-xii-95	At same sitting: Cu- rettage of uterus. Amputation of cer- vix.	Left round ligament normal in every way. Right round ligament not found in canal. Through a small median incision of the ab- domen the right ligament was traced from the cornu of uterus outward, where, after passing through the internal in- guinal ring, it ran upward and outward to be inserted into outer half of Poupart's ligament. It was cut away from its ab- normal attachments, brought down and sutured in the inguinal canal in the usual way. Anatomical result perfect after one month, when patient was last seen. Primary union of both wounds. Patient sat up in bed on eleventh day. Two weeks after operation uterus was found again retroverted. 17-i-96. Coeliotomy. Chronic salpingo- oöphoritis with universal adhesions of ap- pendages posteriorly in pelvis. Uterus not adherent. Tubes and ovaries not enlarged except outer ends of tubes which were occluded. Left ligament remained securely fastened in canal. Right round ligament retracted within abdomen; stump thereof con- tracted to four centimetres in length. Failure due to firm adhesions of tubes and ovaries. After liberation of these, right salpingectomy, left salpingostomy and ventral fixation of uterus; neither ovary removed. 30-vi-96; Patient re- mains well. Fundus forward, attached to abdominal wall.
99	A. C.	30	Married.	4	Retroversion of uterus. Chronic metritis. Bi- lateral salpingo-oöpho- ritis, with adhesions.	24-xii-95	At same sitting: Cu- rettage of uterus. Amputation of cer- vix. 17-i-96; Right salpingectomy. Left salpingostomy. Ven- tral fixation of uter- us.	

100	M. M.	38	Married.	2	Retroversio uteri. Chronic metritis. Dementia.	31-xii-95	At same sitting: Curettage of uterus. Amputation of cervix.	Patient neither before nor after operation, while under our care, passed water voluntarily, requiring the constant use of catheter. Notwithstanding several severe overdistensions of bladder, uterus in normal anteversion on discharge a month after operation, since which time not seen.
101	M. McC.	19	Single.	..	Retroversion of uterus. Endometritis.	6-i-96	Curettage of uterus.	2-vii-96: Uterus in normal anteversion. Patient well.
102	E. K.	45	Single.	1	Retroversion of uterus. Chronic metritis and perimetritis.	17-i-96	At same sitting: Curettage of uterus. Posterior colpotomy for separation of tubal and ovarian adhesions.	Ovaries, tubes, and uterus adherent; otherwise normal. Adhesions separated through an incision of the posterior cul-de-sac, which was then closed.
103	M. C.	20	Single.	1	Retroversion of uterus. Endometritis. Laceration of cervix, vagina, and perineum.	7-ii-96	At same sitting: Curettage of uterus. Trachelorrhaphy. Median coeliotomy.	8-vii-96: Uterus in normal anteversion. Tubes and ovaries normal. Patient well. Difficulty in identifying ligaments in canal. Small median abdominal incision, through which ligaments were traced from uterine cornua outward to canals and there identified. Uterus in normal anteversion one month after operation, when last seen.
104	E. S.	31	Single.	1	Retroversion of uterus. Chronic metritis. Chronic parenchymatous nephritis.	11-ii-96	.....	14-vii-96: Uterus in normal anteversion. Patient relieved of pelvic symptoms. Nephritis persists.
105	J. McG.	18	Single.	..	Anteflexion of uterus. Endometritis.	14-ii-96	Curettage of uterus.	One month after operation uterus in normal anteversion, the angle of flexion having disappeared. Not seen since.
106	M. B.	22	Single.	..	Retroflexion of uterus. Endometritis. Small cystic degeneration of right ovary.	18-ii-96	At same sitting: Median coeliotomy. Puncture of ovarian cysts.	Right ligament would not run out on traction. Small median abdominal incision made to ascertain cause, which was found to consist in abnormal shortening of right infundibulo-pelvic ligament. This ligament stretched, few small cysts of right ovary punctured and the round ligaments shortened in usual way.
								14-vii-96: Uterus in normal anteversion. Patient well in every way.

No.	Name.	Age.	Condi- tion.	No. of children.	Pathological conditions.	Date of operation.	Additional operations.	Result and remarks.
107	A. L.	24	Single.	..	Retroversio uteri. Endo- metritis.	3-iii-96	Curettag of uterus.	Uterus in normal anteversion one month after operation. Not seen since.
108	F. K.	33	Married.	7	Retroversion of uterus. Laceration of cervix. Endometritis.	10-iii-96	At same sitting: Cu- rettag of uterus. Amputation of cer- vix.	30-vi-96: Uterus in normal anteversion. Patient perfectly well.
109	M. J.	36	Married.	2	Retroversion of uterus. Laceration of cervix. Endometritis.	10-iv-96	Curettag of uterus.	Uterus in normal anteversion ten weeks after operation, when last seen.
110	M. McK.	32	Widow.	3	Retroversion of uterus. Laceration of cervix. Endometritis.	14-iv-96	At same sitting: Cu- rettag of uterus. Amputation of cer- vix.	Uterus in normal anteversion and patient perfectly well ten weeks after operation, when last seen.
111	L. P.	42	Married.	1	Retroversion of uterus. Chronic metritis. Right Bartholinitis.	25-iv-96	Curettag of uterus.	Two months after operation, when last seen, uterus in normal anteversion and patient well.
112	E. D.	30	Married.	3	Retroversion of uterus. Laceration of cervix. Endometritis. Mifal and aortic insuffi- ciency.	28-iv-96	At same sitting: Cu- rettag of uterus. Amputation of cer- vix.	Two months after operation, uterus in nor- mal anteversion. Shortening of round ligaments performed under infiltration anaesthesia (Schleich).
113	A. A.	22	Single.	1	Retroversion of uterus. Laceration of cervix. Chronic metritis.	8-v-96	At same sitting: Cu- rettag of uterus. Amputation of cer- vix.	Uterus in normal anteversion and patient well when last seen, six weeks after op- eration.
114	A. J.	23	Married.	..	Retroversion of uterus. Endometritis.	15-v-96	Curettag of uterus.	Uterus in normal anteversion six weeks after operation.
115	L. P.	23	Married.	1	Retroversion of uterus. Laceration of cervix. Chronic metritis.	15-v-96	At same sitting: Cu- rettag of uterus. Amputation of cer- vix.	Uterus in normal anteversion when last seen, six weeks after operation.

RESULTS AND ANALYSIS OF AUTHOR'S OPERATIONS FOR SHORTENING THE ROUND LIGAMENTS.

I have attempted the operation of shortening the round ligaments upon one hundred and twenty-three women all told. My first five cases were operated upon in 1889, and were patterned upon the operation as performed by Alexander. The records of these cases have been lost. The histories of two further patients, operated upon in other cities for the purpose of demonstrating the operation, were never obtained. The records of these seven patients and that of the only patient who died—eight cases in all—are not included in the appended table of operations.

Mortality.—Of the one hundred and twenty-three patients operated upon, one died within a week after operation of acute septic peritonitis, which, until the autopsy proved the contrary, was attributed to the operation. The necropsy showed acute gangrenous appendicitis, with perforation and purulent general peritonitis, the death being in no wise attributable to the operation. The mortality may therefore be fairly stated as *nil*. This is the more remarkable when the large number of additional operations, many of them of a serious character, performed upon the same patients, and the formidable list of diseases complicating convalescence, are taken into account.

Methods of Operation.—Of the one hundred and fifteen cases tabulated, Nos. 1 to 74 were operated upon after the writer's original method (123), except that the buried silkworm-gut suture was used in the last thirty-eight. In Nos. 75 to 101 the method of Alquié-Kellogg was followed. Nos. 102 to 115, finally, were operated upon with my present improved technics.

Age.—The youngest patient was seventeen, the oldest fifty-seven years of age. The average age of the one hundred and fifteen women was twenty-eight years. Fifty-nine patients were married, forty-eight single, eight widows.

Indication for Operation.—

Retroversion and excessive mobility of the uterus, uncomplicated, or complicated only by changes limited to the uterus itself, as endometritis, chronic metritis, laceration of cervix, subinvolution.....	87
Retroversion, with adhesions of the uterus.....	4

Retroversion of the uterus, with adhesions of one tube and ovary.....	2
Retroversion of uterus, with bilateral salpingo-oöphoritis and adhesions of uterus and appendages.....	1
Retroflexion of the uterus, uncomplicated.....	4
Retroflexion of uterus, with adhesions.....	1
Retroversion of anteflexed uterus.....	1
Anteflexion of uterus.....	2
Prolapse of ovaries.....	5
Prolapse of ovaries, with oöphoritis dextra.....	1
Retroversion and incomplete prolapse of uterus.....	4
Complete prolapsus uteri et vaginæ.....	3
Total number of cases.....	115

This list of indications for shortening the round ligaments is believed to sufficiently explain itself, except perhaps as regards the use of the term "prolapse of ovaries." The ovaries are practically found more or less prolapsed in every case of movable retroversion of the uterus. The case has been classified as prolapse of the ovaries, instead of under retroversion of the uterus, whenever the two ovaries prolapsed completely, so as to lie side by side, in contact with each other, in the deepest part of Douglas' sac, *beneath* the retroverted fundus uteri. Whenever the fundus uteri occupied the lowest part of Douglas' sac, with an ovary on either side, the case was classed under the heading retroversion of the uterus.

The relative rarity of cases of retroflexion, as compared with those of retroversion, is due to the fact that those cases only were classed as retroflexion in which the retrodeviated fundus was at least as low in the pelvis as the cervix, and in which, at the same time, the angle of flexion was so acute that the posterior surfaces of corpus and cervix were practically in juxtaposition.

In the cases of retrodeviations of the uterus with adhesions of that organ or of its adnexa, or of both, the adhesions, except in two cases where existing adhesions of the right ovary were not recognized, were first separated either by bimanual divulsion after Schultze, by posterior colpotomy, by median cœliotomy, or by incision of the peritonæum at the internal inguinal ring.

Additional Operations.—In addition to shortening the round ligaments, or attempting to shorten them, the writer performed upon

these one hundred and fifteen patients, at the same or additional sittings, the following operations:

Slitting of præputium clitoridis and separation of preputial adhesions.....	1
Excision of urethral polypus.....	2
Stretching of sphincter ani.....	3
Excision of hæmorrhoids.....	1
Perineorrhaphy	14
Colpo-perineorrhaphy	8
Anterior colporrhaphy.....	7
Bilateral discission of cervix.....	1
Trachelorrhaphy	17
Amputation of cervix.....	40
Curettage of uterus.....	96
Posterior colpotomy.....	2
Vaginal fixation of uterus.....	1
Separation of adhesions in narcosis (Schultze).....	2
Cœliotomy for separation of adhesions.....	3
Ventral fixation of uterus.....	5
Left salpingostomy.....	1
Right salpingectomy.....	1
Salpingo-oöphorectomy for fibroma uteri.....	1
Cœliotomy and puncture of ovarian small cysts.....	1
Ovariectomy	1
Hystero-salpingo-oöphorectomy, by combined perineotomy and cœliotomy, for sarcoma of left broad ligament	1
Inversion of vermiform appendix.....	1
Appendectomy for chronic appendicitis.....	3
Appendectomy for tuberculosis of appendix.....	1
Cœliotomy for acute gangrenous appendicitis.....	1
Radical left inguinal herniotomy.....	1
Radical right inguinal herniotomy.....	1
Bilateral radical inguinal herniotomy.....	2
Right femoral herniotomy.....	2
Nephropexy, for movable kidney.....	11
Bilateral nephropexy.....	2

Including the shortening of the round ligaments, three hundred and forty-nine operations were performed upon these one

hundred and fifteen patients. All of the patients made good recoveries from all the operations performed upon them.

Technical Difficulties encountered in the Operation of shortening the Round Ligaments.—The writer has noted, at the time of their occurrence, all the various technical difficulties encountered in these one hundred and fifteen operations for shortening the round ligaments. His experience in this direction he believes to have been unusually large and varied, and a *résumé* of these difficulties and the way in which they were met may possibly prove of service to younger operators.

First, as regards finding the ligaments. In one instance only (Case XVI) was the round ligament not found, search for it being made on the left side only. The writer feels convinced that the ligament was present, and that the failure to find it was entirely chargeable to his lack of resources and development as an operator upon the round ligaments.

In a second instance (Case CIII), after failure to find in the inguinal canal the round ligament there present, the abdomen was opened in the median line by a small incision, through which the round ligaments were traced from the cornu uteri to the internal ring and into the inguinal canal, where they were then readily identified.

In searching for the round ligament the right deep epigastric artery was divided and doubly ligated in Case XXII. In Case LVI, in searching for a round ligament not present in the canal, the right internal iliac vein was drawn out by the hook, recognized, and dropped without injuring the vessel. In Case XCVI, in fishing for the ligament, the right internal iliac artery was hooked up, recognized as such, and dropped without injury or bad result.

The abnormal course and insertion of the right round ligament in Cases LVI and XCVIII, and of both round ligaments in Case XCII, necessitating their absence from the canal, have already been described. In similar cases, upon not finding the round ligament in the canal, I would propose, as the best plan to follow, to open the peritonæum at the internal ring. The round ligament would then either be recognized running between the folds of the broad ligament or could be readily traced outward from the cornu uteri.

The round ligament may tear, either in the canal or between the internal ring and the cornu uteri, in the attempt to isolate it or in drawing it out of the abdomen.

Three times the round ligament (the left in Case L, and the right in Cases LXX and CVIII) is recorded as being torn within the canal, the uterine end retracting through the internal ring into the abdomen. In one case the torn uterine end was easily recovered just within the internal ring. In a second case the ligament was found, and its torn end pushed out through the internal ring by the aid of a small incision in the median line of the abdomen. In a third instance, a tear of the *left* round ligament, the peritonæum was incised at the *right* internal inguinal ring, and by means of a finger passed through the latter into the abdomen the uterine end of the torn ligament was pushed through the left internal ring into the canal. In all three cases the recovered ligament was secured in the canal in the usual way.

No less than six times the round ligament (the right in Cases XXXI, XXXIX, XLIX, LXXXVIII, and the left in Cases LXXIX, LXXXIV) tore within the abdomen in the attempt to draw it out. In four of these cases the ligament was pulled clean out of the uterus, leaving a depression or hole at the cornu to mark the site of its former insertion. In the fifth case the ligament parted at a distance of one centimetre from the uterine cornu. In each of these five cases median cœliotomy and ventral fixation of the uterus were performed immediately on the occurrence of the accident. In the sixth case (Case LXXXVIII) the round ligament tore just within the internal inguinal ring, leaving the uterine end long enough for purposes of shortening. This uterine end was found through a small median incision, pushed out through the internal ring into the canal, and there secured in the usual way.

In one of the six cases an unrecognized, adherent, small ovarian cystoma was the cause of the tear. The other five must be explained either by diminished strength of the round ligament, due to fatty degeneration or other causes, or to undue force exercised by the operator. The methods of meeting the accident of tear of the round ligament have already been considered.

In developing or drawing out the round ligament its central fibers, or core, as it were, have sometimes been drawn out instead of the entire ligament, the outer or peripheral fibers being held by their attachments in the canal. In such cases the cone of peritonæum accompanying the round ligament should be incised, if necessary, to secure the entire ligament.

The peritonæum incasing the round ligament can generally be

stripped back with great facility. Occasionally, however, the peritoneal investment has been found so firmly attached as to resist blunt dissection. No hesitation need be felt by an operator sure of his asepsis in using the scissors or knife, even though the peritonæum should be opened. In one instance (Case XIII), where the peritonæum was opened, the uterine end of the Fallopian tube was drawn out of the internal ring with the round ligament. The two structures were bluntly separated, the tube replaced within the abdomen, the ligament shortened and anchored in the usual way.

On three or four occasions the writer has had the opportunity at subsequent cœliotomies of observing the condition of the shortened round ligaments. They have always been encountered as short cords running in an almost straight line from cornu uteri to internal inguinal ring, and projecting on the anterior face of the broad ligaments in such a manner as to form a shallow peritoneal depression or pouch between the bladder anteriorly, the fundus uteri posteriorly, and the projecting round ligaments on either side.

Behavior of Operation Wounds.—Ninety-three per cent. of the wounds healed by primary union; in seven per cent. wound infection and more or less extensive suppuration are noted. In one case of acute croupous pneumonia immediately following operation (Case LXXXIII), infection of both inguinal wounds, as well as of a median abdominal incision made at the same time, followed. The three abscesses were opened on the tenth day after operation, and the pus from each of them furnished a practically pure culture of the pneumococcus. The majority of the other cases of infection occurred during a brief reign of sepsis, due to the use of infected silkworm gut in the form of buried sutures. In about one half of the cases the suppuration was deep; in the other half superficial in character. A permanent good result, as far as the position of the uterus is concerned, was obtained in all but two of the suppurative cases—Case LXX and the case of pneumococcus infection mentioned above. In three patients (Cases I, XL, CXI) in whom extensive deep suppuration, with sloughing of the round ligaments and fascial edges, occurred in both wounds, the uterus remained in normal anteversion when last seen six years and a half, one month, and two months, respectively, after operation.

Diseases complicating Convalescence.—During convalescence, or, more accurately stated, during the first four weeks after operation, the following complications were noted:

	Cases
Typhus abdominalis.....	2
Malaria	10
Acute articular rheumatism.....	1
Acute articular rheumatism and pericarditis.....	1
Tertiary syphilis.....	1
Diphtheria	2
Acute croupous pneumonia.....	1
Acute catarrhal (ether) pneumonia.....	4
Acute right pleuritis.....	1
Tænia solium.....	1
Acute appendicitis.....	2
Acute cystitis from catheter infection.....	1
Sarcoma of left broad ligament.....	1

The patient who developed tertiary syphilis died of cerebral tumor three years and eleven months after operation. The rest all made good recoveries from their complications.

ULTIMATE RESULTS.

Failures.—Of the one hundred and fifteen cases tabulated, four were absolute and total failures. In one (Case XVI) the author failed to find the round ligament on the left side, no search being made for it on the right. Failures two and three (Cases LXX and LXXXIII) were due to sloughing of the round ligaments and of the edges of the fascial wound to which they were united. Failure four (Case XCIX) was the result of firm adhesions of the right tube and ovary, not recognized before operation, which pulled back the right round ligament into the abdomen within a month after operation. Two of these patients were subsequently cured, Case LXXXIII by vaginal, and Case XCIX by ventral fixation of the uterus.

There were five relative failures, due to giving way of one round ligament within the abdomen, the ligament in four cases being torn directly out of the uterus, in the fifth tearing at a distance of one centimetre from the uterus. In each of these five patients ventral fixation of the uterus was immediately substituted for the proposed

shortening of the round ligaments, with resultant cure of the retroversion.

It will thus be seen that only two of the one hundred and fifteen patients were not cured of the conditions, in one prolapsus, in the other retroversion, for which operation was undertaken. One (Case XVI) declined a proposed ventral fixation; the second (Case LXX) died a sudden death from fatty degeneration of the heart five months after having the round ligaments shortened.

In speaking of ultimate results in the remaining one hundred and six cases, differentiation must be made between the anatomical result and the therapeutic result. To maintain the uterus in proper position is one thing, to cure your patient of her complaints quite another.

Anatomical Results.—The anatomical result in these one hundred and six cases was invariably all that could be desired, the uterus in each case remaining in normal anteversion at the date of the last obtainable examination. The appended table indicates the period of time after operation at which this final physical examination was made: 29 cases were last examined 1 month after operation; 12 in 2 months; 6 in 3 months; 1 in 4 months; 3 in 5 months; 5 in 6 months; 1 in 7 months; 2 in 8 months; 2 in 9 months; 2 in 12 months; 1 in 13 months; 1 in 14 months; 1 in 15 months; 1 in 16 months; 3 in 20 months; 1 in 21 months; 1 in 22 months; 1 in 23 months; 1 in 24 months; 1 in 26 months; 3 in 27 months; 1 in 28 months; 3 in 30 months; 2 in 31 months; 1 in 35 months; 2 in 36 months; 1 in 37 months; 1 in 38 months; 1 in 41 months; 2 in 42 months; 2 in 43 months; 1 in 47 months; 1 in 48 months; 1 in 50 months; 2 in 53 months; 1 in 55 months; 1 in 62 months; 1 in 66 months; 1 in 72 months; 1 in 73 months; 1 in 77 months; 1 in 79 months.

This makes an average period of observation of nearly seventeen months for each of the one hundred and six cases, a period long enough to warrant definite conclusions as to the permanency of the anatomical results of shortening the round ligaments. These perfect and lasting anatomical results are perhaps the more remarkable when it is considered that the majority of the women belong to the working classes, many of them being compelled to do housework of the hardest kind. In one patient (Case XXVII) the operation successfully stood the severe test of a subsequent complete acute prolapse of the uterus and vagina.

Therapeutic Results.—While the anatomical results may be thus readily and succinctly stated, an accurate report upon the therapeutic results becomes a much more complicated matter. The less searchingly we cross-question our patients, the more superficially we go into their after-histories, and the less thoroughly we examine them in the endeavor to obtain evidence to the contrary, the more likely are we to record a large number of therapeutic successes. But closer investigation often reveals one or more stumbling blocks to perfect satisfaction in the shape of complicating diseases present at the time of operation or developing soon thereafter, which complications more or less fully, more or less permanently, mar the therapeutic result.

The writer has considered it his duty to himself and to his patients to specifically and carefully investigate each case in which the anatomical result was perfect, while at the same time the therapeutic result was not all that could be desired. This was done with a view to finding, if possible, the explanation of the discrepancy.

Among conditions of disease present in patients at the time of operation, which shortening of the round ligaments and other operations combined at the same sitting could not be expected to relieve, and which persisted and caused their own symptoms after operation, the following were noted:

	Cases
Mild insanity.....	2
Chronic nephritis.....	2
Valvular lesions of the heart.....	6
Chronic appendicitis.....	1
Movable right kidney.....	13
Movable left kidney.....	1
Movable right and left kidneys.....	2
Bilateral salpingo-oöphoritis.....	1
Chronic metritis and right oöphoritis, with adhesions of ovary.....	1

Five of the cases of movable kidney were subsequently cured by nephropexy. In a sixth case nephropexy and shortening of the round ligaments were performed simultaneously. The case of chronic metritis and right oöphoritis with adhesions was cured by a subsequent pregnancy, which liberated the imprisoned ovary by

carrying it out of the pelvis. The case of bilateral salpingo-oöphoritis was later radically cured by a vaginal bilateral salpingo-oöphorectomy performed by another surgeon. The remainder of these patients continued to suffer from the symptoms due to their respective complicating diseases. The complications, however, having been diagnosticated before operation, and the prognosis shaped accordingly, left no real ground for disappointment in these cases, the symptoms due to the retroversion being relieved in each of them.

In quite a number of cases, however, the development *after operation* of new morbid conditions caused disappointment, and called for repeated careful and critical analysis of the situation. Questioning and physical examination of the patient showed that the following diseases, developing *after* convalescence from the operation of shortening the round ligaments, had to a greater or less degree marred the therapeutic result:

	Cases
Progressive tertiary syphilis.....	1
Acute articular rheumatism.....	1
Chronic rheumatic endocarditis.....	1
Plumbism	1
Malaria	12
Acute dementia.....	1
Movable right kidney.....	7
Movable left kidney.....	1
Movable right and left kidneys.....	1
Chronic appendicitis.....	1
Acute perforative appendicitis.....	1
Endometritis	2
Salpingitis	1
Salpingo-oöphoritis	8
Fibromata uteri.....	1
Sarcoma of left broad ligament.....	1

Of these conditions developing after operation the following were surgically treated by the writer, all of them successfully:

Four of the movable kidneys by nephropexy.

The case of acute perforative appendicitis by removal of the appendix and drainage of abscess.

One case of endometritis and the case of salpingitis by curettage of the uterus.

One of the cases of salpingo-oöphoritis by unilateral and one by bilateral cœlio-salpingo-oöphorectomy.

The fibromata uteri case by bilateral salpingo-oöphorectomy.

The sarcoma of left broad ligament by extirpation of uterus, tubes, ovaries, and entire left broad ligament.

Among the conditions existing at the time of operation or developing thereafter, the various inflammatory conditions affecting tubes and ovaries, and movable kidney or kidneys, play so large and so important a rôle as to call for separate consideration.

Salpingo-oöphoritis in its Relations to Retrodeviations of the Uterus.—More or less endometritis exists in every case of retrodeviation of the uterus of some standing. This endometritis is not always, perhaps not even generally, cured by simply correcting the position of the uterus. Hence the rule to curette the uterus preliminary to any operation for the correction of the retrodisplacement. Endometritis predisposes to—indeed, tends directly—to the development of salpingitis, and, by continuation, of salpingo-oöphoritis. We have observed no less than eleven cases of the gradual development of endometritis, salpingitis, and salpingo-oöphoritis months after shortening the round ligaments, with resultant nullification or decided impairment of the therapeutic result of the operation.

Movable Kidney in its Relations to Retrodeviations of the Uterus.—The frequent association of movable kidney or kidneys and retrodeviations of the uterus has been observed by the writer since 1890, and is drastically illustrated by the recorded observations made upon the one hundred and fifteen cases tabulated. No less than twenty-five patients are noted as suffering from movable kidney or kidneys, either existing at the time the round ligaments were shortened or developed after the operation. Of these twenty-five patients with movable kidney or kidneys, eleven were cured by right nephropexy and two by bilateral nephropexy. In three of these patients the nephropexy preceded the operation on the ligaments in point of time; in one case the two operations were performed simultaneously; while in nine instances nephropexy followed shortening of the round ligaments.

The therapeutic results may be summed up in the statement that the symptoms due to the positional deviations of the uterus and ovaries, for the correction of which shortening the round ligaments was undertaken, were permanently relieved in one hundred and eleven cases, the remaining four cases being complete failures.

The symptoms due to other pathological conditions coexisting in the patient were, except in a certain proportion of cases of endometritis and catarrhal salpingitis, not influenced by the operation. In other words, shortening of the round ligaments accomplishes therapeutically all that can logically be expected of it.

Hernia in Connection with shortening the Round Ligaments.—Only one patient (Case XIII) acquired hernia as the result of shortening the round ligaments. Both wounds of this patient healed by primary union. During the fifth month of her first pregnancy, nineteen months after shortening the round ligaments, right inguinal hernia developed. Soon after delivery, or about two years after operation, left inguinal hernia also appeared. Both herniæ are to be operated upon for radical cure after the termination of her present pregnancy, the second since operation.

Case XLII suddenly developed an acute strangulated right femoral hernia two years and nine months after, but certainly not as a result of, shortening the round ligaments. The hernia was successfully operated upon on the day of its occurrence, and remains radically cured to date.

Case XLVI had left inguinal hernia and retroversion of the uterus. Radical herniotomy was performed in conjunction with shortening the round ligaments. The patient remained cured of the hernia when last seen, sixteen months after operation.

Case LXI had retroversion and bilateral inguinal hernia, and double herniotomy was added to shortening the round ligaments. Suppuration and sloughing in both wounds was the result of repeated removal of her dressings by the mentally irresponsible patient. The left hernia recurred six months after operation; the right remained cured when last seen, nine months after operation.

Case LXXI presented a *right* inguinal and a *right* femoral hernia at the time of shortening the round ligaments. Both herniæ were operated upon with a view to radical cure at the same sitting with the ligament operation. When last seen, seventeen months after operation and two months after delivery at term, the inguinal hernia had returned, a new *left* femoral hernia had developed, while the original *right* femoral hernia remained cured.

In Case LXXIV two inguinal herniæ were operated upon for radical cure while shortening the round ligaments. Both herniæ remained cured when the patient was last seen, twenty-one months after operation.

To summarize: Two inguinal herniæ developed in one patient as a result of the operation; two femoral herniæ developed after, *but not as a result of*, the operation. Of seven herniæ existing at the time of operation, and operated upon for radical cure while shortening the round ligaments, four inguinal herniæ and one femoral remain cured; two inguinal herniæ have recurred. Four inguinal and two femoral herniæ are now present as against six inguinal and one femoral existing at the time of shortening the round ligaments. The two femoral herniæ stand in the relation of *post hoc*, but not *propter hoc*, to the operation of shortening the round ligaments. Two inguinal herniæ, both in the same patient, were produced, and four inguinal herniæ in four patients were cured by the operation of shortening the round ligaments. These hernia experiences all belong to the period at which the entire canal was opened and the round ligament was placed immediately behind the lips of the fascial wound, to which it was sutured. With the present improved technics, closing by a Bassini, the occurrence of an inguinal hernia after operation ought to prove a very great rarity, while the cure of herniæ existing at the time of shortening the round ligaments should become an almost absolute certainty. The inguinal canal can be much more securely closed in women than in men, owing to the necessity of providing for the spermatic cord in the latter.

Cases of Pregnancy following shortening of Round Ligaments.—Eighteen pregnancies have been observed, occurring in eleven of the one hundred and fifteen tabulated cases.

Of these eighteen pregnancies no less than six occurred in three of the five patients whose round ligaments parted within the abdomen during operation, and in whom ventral fixation of the uterus was substituted for shortening the round ligaments.

These six, therefore, are cases of pregnancy following ventral fixation of the uterus. One mother (Case XXXIX) died suddenly, from valvular disease of the heart, on the eve of confinement at term. Case XLIX had one miscarriage and two living children at term, both born without complications. The third patient (Case LXXIX) had one abortion at the fourth month and one difficult and disastrous labor at term—transverse presentation, inability to deliver, on account of high posterior position of cervix and obstruction formed by thickened anterior wall of uterus; rupture of uterus; cœlio-panhysterectomy; death from sepsis.

The records of the twelve pregnancies following shortening of the round ligaments are carried up to date of going to press:

Case XI: Three pregnancies, three living children at term.

Case XIII: Two pregnancies, two living children at term.

Case XX: One pregnancy, one living child at term.

Case XXXVIII: One pregnancy, one living child at term.

Case LXVII: One pregnancy, one living child at term.

Case LXXI: One pregnancy, one living child at term.

Case XLVI: Two pregnancies, one miscarriage at third month; pregnant seven months, without complications, when last seen.

Case XCVII: One twin pregnancy; miscarriage at third month.

There were thus ascertained twelve pregnancies in eight women whose round ligaments had been shortened. Of these twelve pregnancies two terminated in abortion, one was lost sight of after the seventh month, and nine ended with the safe delivery at term of living children. All the labors were easy and natural with one exception: Case LXXI had a transverse presentation, necessitating version and forceps to the after-coming head; mother well, child alive. In the seven patients whom it was possible to follow after each pregnancy, the uterus remains in anteversion.

SUMMARY.

Shortening the round ligaments is the only operation by which the retrodisplaced uterus can be brought into normal and physiological anteversion without establishing always pathological peritoneal adhesions. All other retroversion operations depend for their success upon more or less extensive, more or less firm, peritoneal adhesions.

Shortening the round ligaments, in capable hands, is as safe and as successful as the other retroversion operations.

Shortening the round ligaments is absolutely free from the disturbances and disasters of future pregnancy and parturition which are on record as having followed vaginal and ventral fixation of the uterus, its chief rivals.

Shortening the round ligaments is therefore indicated, and should be the operation of choice whenever and wherever it will meet the indications as well as, or better than, one of the rival procedures.

Shortening the round ligaments is indicated—

(a) In all uncomplicated cases of retroversion, retroflexion, and excessive mobility of the uterus requiring operative treatment.

(b) In extreme and aggravated cases of antelexion of the uterus.

(c) In cases of retroverted, antelexed uteri without adhesions.

(d) In simple prolapse of the ovaries when that condition calls for treatment.

(e) In cases of adherent retrodisplaced uteri, with or without adhesions of tubes and ovaries, these organs being otherwise in condition to call for their conservation. The adhesions are first to be severed by colpotomy, median cœliotomy, or an incision through the peritonæum at the internal ring.

Shortening the round ligaments does *not* compare in efficiency with ventral fixation of the uterus as a prolapsus operation.

Shortening the round ligaments should always be immediately preceded by curettage of the uterus. Other operations may be associated according to the indications in the particular case.

The round ligament is never absent. It may, however, after emerging from the internal inguinal ring, run an erratic course to an abnormal insertion (in the writer's experience in four per cent. of round ligaments).

Shortening the round ligament is best performed by opening the whole length of the anterior wall of the inguinal canal, drawing the ligament out at the internal ring, really shortening the intra-abdominal portion by stripping back the investing peritonæum and closing the wound after the manner of the Bassini operation for the radical cure of inguinal hernia, leaving and securing the shortened ligament in its natural habitat behind the lower edge of the internal oblique.

Of the author's one hundred and sixteen cases, four were absolute failures. In one of these the operator failed to find the round ligament on one side; failures two and three were due to sloughing of the ligaments; failure four to unrecognized adhesions of one ovary, which pulled back the round ligament of that side into the abdomen within a month. Two of these four patients were subsequently cured, one by vaginal and one by ventral fixation of the uterus. There were five relative failures, due to giving way of one round ligament within the abdomen. In each of the five patients ventral fixation was immediately substituted, with resultant cure

of the retroversion. The writer preferred this course to trusting to one shortened ligament to hold up the uterus. One patient died within a week after operation of acute gangrenous appendicitis with septic peritonitis.

In the remaining one hundred and six patients the uterus remained in normal anteversion when last examined, the period of observation varying from one month to six years and a half after operation, and averaging over sixteen months for each of the one hundred and six cases.

The writer is convinced that these results can be improved upon.

Two inguinal herniæ, both in the same patient, occurred as a result of shortening the round ligaments. Six inguinal and one femoral hernia were operated upon simultaneously with shortening of the round ligaments. Of these two, inguinal herniæ recurred; the femoral and four inguinal herniæ remain cured.

Twelve pregnancies are known to have followed in eight of the successful cases. Of these, two terminated in abortion, one was lost sight of after the seventh month, and nine ended with the safe delivery at term of living children. In the seven patients whom it was possible to follow after each delivery, the uterus remains in anteversion.

The appended bibliography is as complete as the resources of the library of the New York Academy of Medicine enabled us to make it. The writer is deeply indebted to Dr. T. Alexander Lehman for valued aid in its preparation and in abstracting the literature.

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RARE COMPLICATIONS IN TWO CASES OF HYSTERECTOMY.

BY ELY VAN DE WARKER, M. D., SYRACUSE, N. Y.

FIRST CASE.

Fibroid Tumor of the Uterus, complicated with Adeno-lymphangitis and Phlebitis; Hysterectomy; Recovery.

Mrs. B., aged thirty-eight years, multipara (five, youngest six years old), was referred to me by Dr. Carmer, of Lyons, who furnished the following previous history: The presence of a pelvic growth had been recognized about one year, but had never occasioned any unpleasant symptoms. Menstruation had continued both timely and normal in quantity. A left-sided pelvic pain was sometimes present, but never severe in character. Appetite and

nutrition unimpaired. About three months before bringing her to me he discovered that each menstrual period was attended by high temperature, which gradually receded to the normal in a week or ten days. At the same time a swelling of the left leg was observed, with some tenderness over the course of the femoral veins. She was admitted into the hospital and examined in the presence of Dr. Carmer on March 1st. A large growth occupied the pelvic cavity, symmetrical in outline and extending above the pubes. On bimanual palpation, the uterus and growth appeared blended into one mass, and as movable as a mass so nearly filling the pelvic cavity could be. There was some tenderness in the iliac regions, more marked upon the left side; but this was not a marked feature. The tumor could not be lifted out of its pelvic bed, and any attempt to manipulate in this direction caused sharp pain. The sound entered the uterine cavity about four inches, with but slight pain and no bleeding. The bladder appeared normal on examination, and unimplicated with the growth. Examination by the rectum showed a very firm resistant tumor nearly filling the pelvis, with great tenderness to the touch in the lateral pelvic spaces. The diagnosis was a fibroid centrally implanted upon the uterus, with beginning peritonitis and probable implication of the pelvic lymphatics.

Hysterectomy was advised, and, the patient consenting, she was placed upon preparatory treatment, and the operation done on March 21st, Drs. McLellan and Randall, of the Woman's and Children's Hospital staff, and Dr. Carmer being present. The combined vaginal and suprapubic method was employed, and the entire uterus, tumor, tubes, and ovaries removed with but little difficulty. While in the Trendelenburg position, the folds of the broad ligaments could be widely separated, and the plexus of lymphatic glands situated on each side of the pelvis within the folds could be seen very clearly, inflamed and greatly enlarged. The temptation to remove this mass of glands was very great, but, as these glands are situated upon very important lymph channels, their removal might cause a very serious blockade of returning lymphatic fluid; they were, I think, wisely left. While undergoing preparation for the operation the temperature had taken an active febrile turn, the mean being 101.2° morning and 102.4° evening. The evening following the operation the temperature was 99°, and was never but two or three decimals above during the week following the operation. This period of low temperature coincided with

the time of active drainage. The lower segments of the broad ligaments were secured by clamps, which were removed in about thirty-six hours, the vaginal vault left open. A free drainage by gravity of bloody serum occurred, and on the second day was so free that I became alarmed lest the bladder or a ureter was wounded. An examination showed that this was not the case. After the fifth day the drainage greatly diminished, and on the seventh the vaginal vault had completely closed, considerably to my surprise. The temperature at this stage again became active, with a mean range coinciding with that observed previous to the operation. The leg became swollen and tender, and bandaging was resorted to. At one time, at the end of the second week, it was nearly determined to open the vaginal vault and insert a gauze drain; but as the temperature and phlebitis began gradually to subside, the idea was abandoned. During this post-operative period there was no abdominal or pelvic pain or tenderness. Further than this, recovery was without event, and the patient discharged in twenty-seven days after operation in excellent condition. Before the discharge of the patient we learned of a circumstance that may have had an important bearing upon the phlebitis, and which the patient had forgotten. After the birth of her fourth child, about seven years previous to the operation, she had had an attack of phlebitis, with swelling of the left leg, which required bandaging for over a year. A subsequent birth had taken place without any renewal of the disease until it was provoked by the presence of the fibroid. With this history it is doubtful if the neoplasm was a primary factor in the disease, but there can be no doubt that it was so in the renewal of the old process.

As a cause of phlegmasia alba dolens, this condition is unique. In the Index Catalogue of the Surgeon-General's Library no case is recorded of this causative relation of a benign fibroid of the uterus. Cases of phlebitis consecutive to pelvic operations, ovariectomy, hysterectomy, and operations of even a minor character, are on record, but have no bearing here. The literature of traumatic phlebitis and phlegmasia alba dolens is very extensive, but in the form presented here of adeno-phlebitis, or of lymphangitis and associated phlebitis prior to operation, it is rare.

In the report of the proceedings of the Washington Gynæcological Society of April 3, 1896, a case is reported of a suppurating uterine fibroid complicated with phlegmasia. As a careful exami-

nation failed to demonstrate pus either in the pelvis or in the tumor, there is no analogy between the cases. It is referred to, however, in connection with my own case, as demonstrating very clearly the connection of the dense, low-grade tissue elements composing the stroma of these growths with the absorbent and lymphatic systems. It is thus easy to understand the shrinking and more or less complete absorption of these growths. Several cases in my own experience have satisfied me that pus or septic matter in the lacunæ of a fibroid is in a position favorable to most rapid and dangerous absorption. A case of this nature formed the basis of an article I contributed to the *Transactions of the American Gynecological Society* for 1888. A supposed ptomaine, not pus, was the fatal agent in this case. As a general rule, no condition complicating a fibroid uterine tumor so imperiously demands hysterectomy as a continued fever beyond the control of treatment. I would not expect a case of this character to recover in which a supravaginal stump was left and covered with sutured peritonæum, after the methods of Kelly or Baer. The hysterectomy must be total, with the freest possible drainage of the cellular and lymph spaces of vaginal flaps, and the lower segments of the broad ligaments.

I think I am justified in the comment that, had the vaginal vault been closed by suturing together the folds of the broad ligament and vesical peritonæum, and thus preventing drainage, as is practiced by some operators, the outcome would not have resulted as favorably to the patient. The marked effect of vaginal drainage upon the temperature is the best proof of its value in view of the vicious character of the inflammation demonstrated by the operation. Further, the temperature in all my hysterectomies, in which free gravity drainage was practiced through the unclosed vaginal vault, was especially favorable.

SECOND CASE.

Fibroid Tumor of the Uterus; Diagnosis obscured by a Rare Congenital Vaginal Defect; Hysterectomy; Recovery.

Miss G., aged twenty-eight years, single, dressmaker, first menstruated at fourteen years, and enjoyed good health up to two years prior to seeking advice. She then noticed that menstruation was becoming excessive and greatly prolonged. She consulted me in August, 1895, and submitted to examination for the first time. In

general appearance she was excessively anæmic, with the peculiar waxy pallor of the hæmorrhagic, although in good flesh. Appetite and sleep excellent. Flatulency and constipation were troublesome. Examination showed a very short vagina, with the vaginal portion of the uterus shortened, and what appeared the os externum patulous and very thin, with a mass with a central depression or division presenting within easy reach of the finger. Conjoined manipulation demonstrated a uterus of very firm consistence, uniformly enlarged, and reaching about three inches above the pubes. The organ was about the size and form of a pregnancy of the fourth month. Motion imparted by the external hand was easily communicated to the whole mass, which could be felt to impinge upon the patulous os externum. By the rectum the contour of the mass was not so regular, a rounded posterior extension being prolonged directly backward. The sound was not introduced, as the patient had to take a railway journey to her home and hæmorrhage was easily induced. The diagnosis was an intra-uterine fibroid already presenting at the os externum, with a probable attachment to the posterior uterine wall.

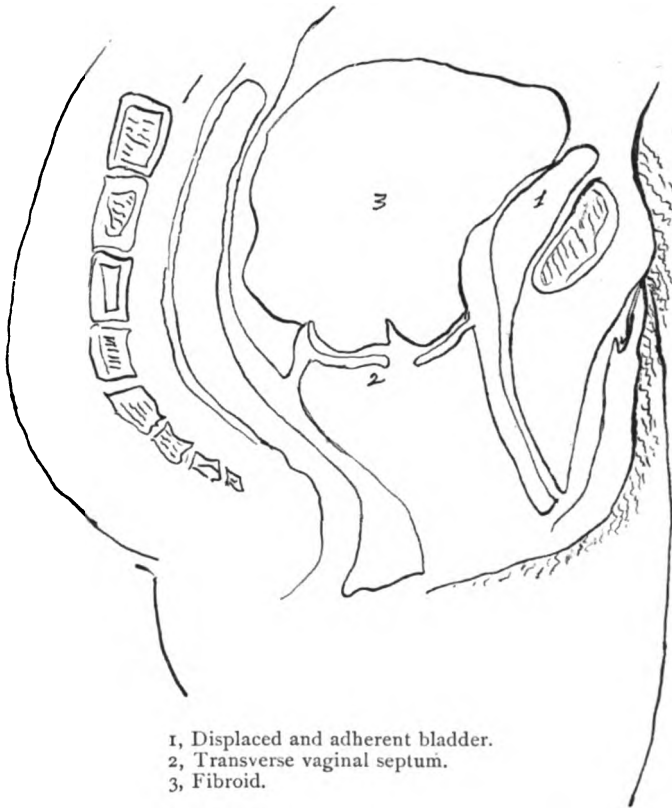
The patient declined operation, as she hoped the troublesome hæmorrhage could be controlled by medicine.

On March 2, 1896, she was admitted into my hospital, freely consenting to an operation, as her condition was becoming desperate. The theory of the operation was Emmet's method by traction and fragmentation by scissors. When upon the table under an anæsthetic, the actual condition was revealed, and one better designed to deceive the touch could hardly be conceived. What appeared to be the os externum was a transverse septum of the vagina placed just below the vaginal portion projecting into the septum, and making it conform in contour. What appeared a patulous os externum was the central opening. The finger, introduced through the opening, could be swept around the cervix beyond the septum, and, by breaking up some moderately firm adhesions, a perfectly formed cervix was demonstrated. The diagnosis, so far as an intra-uterine fibroid was concerned, was a mistake; the growth was a fibroid of the whole uterus, and the operation would be the more serious one of total uterine removal.

As a preparation for this operation, the septum was cleanly removed by scissors. Some smart hæmorrhage was controlled by a few moments' compression with forceps, and the space packed

with gauze. It was observed that the vaginal fornices were very nearly obliterated by the septum, which would add some difficulty to the clamping of the lower segment of the broad ligaments, which I was anxious to do.

The operation was done on March 5th, Drs. McLellan, Breese, and Randall, of the Woman's and Children's Hospital staff, being



present. The patient made a rapid recovery from the operation. She was, however, so weak from the many months of excessive blood loss that she was detained several weeks in order to recruit.

An examination of the drawing will illustrate better than any description the situation and character of the congenital deformity. And I am free to confess that no surgeon was more completely deceived than I was by the peculiar condition which an attempt to

operate after a method based upon my error revealed. That no serious error could be made is not the point. The fact that a local malformation could be so perfectly developed that a mistake was the natural outcome, and led an old veteran to omit a never-varying practice—not to give a positive diagnosis concerning an intrapelvic or abdominal condition that may demand operation without an examination under an anæsthetic—this is the lesson that may be learned from this interesting case. While I like to appear to be right as well as any one, in my opinion, yet I believe I would make my harmless mistake a serious offense against good surgical morals if I were to withhold this case, which teaches so forcibly never to take anything for granted in a pelvic examination.

A CASE OF EXENCEPHALIA.

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The very infrequent occurrence of such monsters and the still greater rarity of a well-marked case of exencephalia, in which the cause for such morbid condition is clearly patent, prompts me to report the following case, which may be found of interest, occurring, as it did, in private practice.

The history of the case is as follows:

Mrs. R., aged twenty-three, had pneumonia at two and five years of age and meningitis at seven. From this age to puberty was delicate. Slight improvement in health at puberty. She began to menstruate at fifteen years and a half, having a painful and scanty flow. She was married at the age of twenty, and became pregnant during November, 1895. About six weeks after her becoming pregnant she received a fall from a street car, inflicting such injury that two days later she began to flow profusely, presenting all the symptoms of threatened abortion. During my absence from the house several pieces, shreds, and clots were passed and destroyed; hence I was unable to say positively whether she had aborted or not. After about ten days in bed, three of which were marked by severe pains and soreness over the entire abdomen, she gradually

improved, and at the time of her next menstrual period failed to flow, leading me to believe that she had not aborted, but was still pregnant.

The remainder of the term was uneventful, until after she had begun to feel the movements of the foetus. These became so violent that she complained very bitterly of the "awful movements" of the child. Incidentally, it might be remarked here that such exaggerated movements, together with transverse position, a face presentation, and an abundance of amniotic fluid, seem to be characteristic of this form of monstrosity.

During her last week of pregnancy she was almost continuously in pain—severe, piercing pains, gradually growing worse until the birth. From her extreme size she fully expected twins, but it proved to be only the superabundance of amniotic fluid.

On examination at the time of beginning labor, I found the position to be transverse and the foetus located very high up in the pelvis. Owing to the abundance of fluid present, by careful and patient bimanual manipulation the head was soon brought down and the face presented. After the position was changed the pains became real labor pains, and within an hour delivery had occurred, the shoulders being the most difficult portion to be born. The cord was of uncommon length, being tortuous and twisted around the body and legs. The placenta was normal in size and appearance; the membranes were intact, but presented several spots of thickening, especially at the marginal attachment to the placenta, indicating signs of probable inflammation during early gestation.

The child was a male, and lived about five minutes, struggling and gasping, but uttering no vocal sound. Its weight was six pounds and a half. The face was broad and flat; the mouth enlarged with thickened and partially everted lips, due to the encroachment of the thickened and enlarged tongue protruding from the mouth; the ears were large and clumsy, corresponding with the exaggerations of other portions of the face. The eyes protruded, being located in an only partially complete and very shallow orbit, their position, as will be seen in Fig. 1, being at the uppermost portion of the head—in fact, their upper one third can be seen above the level of the upper surface of the frontal bone. The incomplete frontal bone extends horizontally backward from a line drawn between the upper and middle third of the eyeball, the superior portion (one third) of the orbit being absent.

The posterior border of the frontal bone is roughened and thickened, a narrow band of which is covered with a heavy growth of hair. At this posterior border of the frontal all bony growth of the cranium seems to stop, as the parietal and occipital bones are entirely absent, and there is only a rudimentary development of the



FIG. 1.—Front view.



FIG. 2.—In profile.

temporal bones. The vertex being entirely absent, that portion of the brain present, and which comprises only a small part of the cerebrum, occupies a sac composed of the normal meninges, and falls back between the shoulders. This sac contains but little fluid, and the convolutions and sulci of the brain substance can be seen and outlined quite plainly. The cerebellum and oblongata are entirely absent. Only a rudimentary development of the spinal cord exists. The bones at the base of the skull are only partially present.

The neck is entirely absent, no cervical vertebræ and neither the atlas nor axis being present; hence there remains only a crease to mark the division between the head and trunk, the head resting directly upon the trunk between the shoulders. There is no spina bifida existing in this specimen, but the dorsal vertebræ are much broader than usual, giving exceptional breadth to the shoulders and chest. The trunk was well developed—in fact, abnormally so, as may be seen by referring to the cuts. The limbs were longer than normal and abnormally developed, even to the extremities of the toes and fingers.

A great variety of interesting theories are advanced by the numerous writers on the subject of teratology regarding the origin and causes which operate to produce the teratological series "which is almost as complete as the zoölogical series could be" (St.-Hilaire).

Among the several hypotheses entertained, three only are worth mentioning, and of these the second alone seems philosophical. They have been attributed:

1. To the influence of the maternal imagination on the foetus *in utero*. Such injurious impressions have undoubtedly often been produced upon the women who have subsequently given birth to monsters; but, on the other hand, the association is far from being constant. Further, such impressions to be operative must occur before the fifth month of pregnancy; yet in many of the most apparently plausible cases the perturbing influence occurred only shortly before birth. In any case, the mechanism of the influence, even when it exists, is at present quite inexplicable.

2. To accidental changes experienced by, and morbid influences acting directly upon the foetus during its uterine existence, as mechanical injuries (blows, kicks, falls) and diseases affecting it.

From the experiments of several observers, it has been shown that by submitting hens' eggs to various mechanical influences during incubation, the development of the embryo may be interrupted or modified in such a manner as to give rise to malformations; and many observations tend to prove that such influences affecting the uterus in the early months of pregnancy produce in like manner certain malformations by causing an arrest of development.

3. To a primitive defect in the germ. Cases of supernumerary fingers and toes which fall under this division of the classification are probably due to an excess of formative action in the part, and may be attributed to a direct hereditary taint existing in one or both

parents, causing a repetition of similar deformities in different offspring.

In following the history of the term of pregnancy in our present case we are led to the conclusion that this monster was produced by some cause of the second class mentioned above. We are unable, she being a primipara, to trace a hereditary tendency, and can find no time in her history when she received any mental impression which might so operate; hence we have nothing left to believe except, as a consequence of the fall referred to, injury was inflicted to the embryo *in utero*, causing an inflammation, as evidenced by the spots of thickening which were noticed at the time of birth in the membranes at their marginal attachment to the placenta, thus displacing and rearranging the otherwise normal cells, and thereby producing, as we note in the cuts accompanying this article, abnormal development in one part and entire absence of development of other organs of the body.

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THE TREATMENT OF FIBROID TUMORS OF THE UTERUS.*

BY W. EASTERLY ASHTON, M. D., PHILADELPHIA.

The treatment of fibroid tumors may be divided into the symptomatic and surgical. Hæmorrhage, pain, and the results of mechanical pressure are the symptoms which require our attention in the symptomatic treatment of these tumors.

Hæmorrhage is most marked in the interstitial and submucous varieties, and may manifest itself either as a menorrhagia or a metrorrhagia. The most useful drugs to relieve this symptom are ergot, *hydrastis canadensis*, and *cannabis indica*.

Ergot is either administered by the mouth or hypodermically; perferably by the former method, as the injections are not only very painful, but are liable to cause abscesses. Ergotine in doses of two to three grains three times a day is the best form in which to use

* Read before the Philadelphia Obstetrical Society, November 5, 1896.

the drug. On account of its depressing effects upon the heart, strychnine should be given at the same time in doses of one thirtieth of a grain. There is no question of the fact that this treatment, continued for a length of time, will in some instances not only lessen the hæmorrhages, but occasionally even diminish the size of the tumor, or at least check its growth.

The fluid extract of *hydrastis canadensis* and the tincture of *cannabis indica* may be employed in cases where no results are derived from the use of ergot.

Curettement of the uterine cavity may be resorted to when the hæmorrhage is continuous or severe, and does not yield to internal treatment. A sharp curette should be used, and the mucous membrane thoroughly removed. This treatment is followed at once by marked improvement, and is one of the very best means at our command to meet the symptom under consideration. It is hardly necessary to call attention to the fact that disease of the uterine appendages is a positive contra-indication to the employment of curettage.

Vaginal injections of water as hot as can be borne should be used twice daily for a considerable length of time. At least a gallon of water must be used at each injection, so that the vaginal vault will be thoroughly exposed to the douche. The injections should be continued during the menstrual periods.

The vaginal tampon is a valuable aid in checking, for a time at least, a continuous hæmorrhage. Again, it is the most certain method we possess to control either an excessive hæmorrhage or a prolonged or profuse menstrual flow. I have seen severe hæmorrhages controlled for months by its use. The tampon is made of absorbent gauze, cut into a strip six inches wide and sufficiently long to contain enough material to thoroughly pack the vagina. A compress over the vulva and a -bandage complete its application. It should be removed in twenty-four hours and reapplied if necessary.

I can not too strongly urge the necessity of patients suffering from hæmorrhages or an excessive menstrual flow remaining in bed during the entire period of menstruation. The observance of this simple precaution will aid materially in the treatment of these cases.

From a careful study of the results obtained by others with electricity in the treatment of fibroids, I am convinced beyond a

doubt in my own mind that the remedy has no place in the management of these tumors. It is undoubtedly true that electricity will relieve in some instances the hæmorrhage and lessen the pain. Yet, when we take into consideration the dangers of septic infection following its use, and also the possible existence of tubal disease, which is a positive contra-indication to any form of intra-uterine treatment, I can not see any advantage to be gained by employing this agent when the methods I have just described will give as good results without the dangers to life.

Pain occurring as a symptom of uterine fibroids may be due to pressure upon adjacent organs and nerves. Again, a submucous tumor projecting into the uterine cavity may cause painful contractions of the uterine walls, which become especially severe at the time of menstruation. So, too, a fibroid uterus in which the enlargement is general may be painful. Finally, adhesions between the tumor and adjacent organs or parts and local peritonitis are a frequent cause of the suffering endured in these cases.

The routine treatment for pain which I have found most useful is hot-water vaginal injections twice a day, and the introduction into the vagina of cotton-wool tampons saturated in a ten-per-cent. solution of ichthyol in glycerin. The tampons are inserted twice or three times a week, and removed on the following morning. Internally, I give the tincture of cannabis indica along with the bromide of sodium.

Where the symptoms are caused by pressure, the knee-chest position gives great relief, and under these circumstances I employ this posture along with the above-described treatment. The patient should assume the knee-chest position for ten to fifteen minutes three times a day: In the morning before getting out of bed, at noon, and on retiring for the night. Another direction I give my patients is to lie as much as possible, when recumbent, upon the abdomen or side, so as to take the weight of the tumor away from the points pressed upon when in the erect or sitting position.

The use of posture in the treatment of pain due to pressure has in my hands accomplished more than any other method I know of.

In fibroids associated with localized chronic peritonitis I employ salines in addition to the routine treatment, giving a sufficient quantity of the remedy to produce one watery movement daily for several days, and then using the salts once a week for an indefinite length of time.

The pressure of fibroid tumors upon the bladder and rectum frequently causes most distressing and dangerous symptoms.

Compression of the neck of the bladder results in retention of urine in some cases, and in others vesical tenesmus. Hæmorrhoids and constipation also result from the rectum being pressed upon.

In some cases the constipation is so obstinate that toxæmia occurs as the result of reabsorption. Pressure upon the ureters, if long continued and severe, gives rise to grave kidney disease and structural changes in the ureters and pelvis of the kidneys.

In the treatment of pressure symptoms little can be done beyond relieving the organs pressed upon, by having the patient assume the knee-chest position in the way already described.

In some cases the results of this treatment are excellent, while in others there is but little difference, if any, in the severity of the symptoms. Of course much depends upon the size of the tumor, its position, and also its movability.

I have rarely seen any good results obtained from tampons and supporters in these cases.

Surgical Treatment.—Before considering the surgical treatment of the submucous, interstitial, and subperitoneal forms of fibroma, I shall indicate briefly the management of fibroids which are limited to the vaginal portion of the cervix, and also pedunculated growths attached to the uterine cavity or cervical canal.

Fibroid enlargements of the vaginal cervix are readily removed by amputation of the cervix and covering over the raw surfaces by bringing together the vaginal mucous membrane from above and below. The operation is very quickly done, and effectually gets rid of the disease.

Pedunculated growths or polyps are removed by seizing the tumor with a strong forceps and making traction upon the pedicle, which is then cut away close to its attachments with scissors curved on the flat.

The operative procedures advised at the present time for the cure of uterine fibroids are hysterectomy, morcellation, myomectomy, and castration.

Hysterectomy.—This operation may be either abdominal or vaginal. The abdominal operation may be either supravaginal or total. Again, the supravaginal may be performed by what are known as the extraperitoneal and intraperitoneal methods.

Comparing abdominal with vaginal hysterectomy, I believe the

former is by far the safer operation. The operator is at all times able to see what he is doing; his work is complete, it is surgical, and complications are easily met and disposed of intelligently.

In performing a vaginal hysterectomy the operator is working in the dark, and has no conception of the damage done during the successive steps in the operation. Again, convalescence after these operations is prolonged; there is a foul discharge from the vagina, lasting in some cases for weeks, and finally urinary and fæcal fistulæ occur in some instances. Abdominal hysterectomy, on the other hand, has a rapid and clean convalescence, without the dangers of a prolonged suppurative process in healing.

The next question I shall refer to is that of the relative value of supravaginal hysterectomy and complete or total removal of the uterus.

The selection of either of these operations depends upon the indications in a given case. For example, total hysterectomy is indicated in sloughing fibroids with general infection or when malignant disease is associated with the neoplasm. On the other hand, supravaginal hysterectomy is the preferable operation when these conditions are absent. I am well aware that some of the best operators in the country prefer total removal of the uterus in all cases; but when we take into consideration that it is impossible to render the vagina aseptic, and that a total hysterectomy necessarily brings the fingers of the operator in contact with it, I believe the supravaginal operation is the safest. Again, the vault of the vagina is better preserved when the cervix is left intact, and this point is of some importance in the selection of the operation, for the reason that sexual intercourse is somewhat interfered with after total hysterectomy. Finally, the total removal of the uterus is a longer operation than supravaginal hysterectomy, and the hæmorrhage is more difficult to control.

The recent advances made in the technic of abdominal hysterectomy have resulted in practically doing away with the extraperitoneal treatment of the stump. The Trendelenburg position gives such freedom of sight and manipulation that the intraperitoneal method is now used by all progressive surgeons.

I need not refer to the disadvantages of the old extraperitoneal method; the long convalescence, the purulent discharges, the sloughing tissues, and the greater frequency of hernia are well known to us all.

The old method has only one point in its favor—namely, it is an operation any beginner may do in uncomplicated cases.

It requires no skill or dexterity, and can hardly be considered surgery according to modern ideas.

The intraperitoneal method does not increase the mortality in the hands of competent operators, and the convalescence is as short and easy as in simple ovariectomy.

Morcellation was perfected and advocated by Péan, and is the method most frequently employed by French surgeons. The operation may have for its object simply the removal of a submucous or an interstitial growth, or it may be followed by the complete removal of the uterus through the vagina.

The operation of morcellation for the removal of a submucous or interstitial fibroid can not be too strongly condemned. It leaves the uterine cavity badly lacerated, and during the long convalescence which ensues the patient's life is in danger from septic infection. Again, vaginal hysterectomy following morcellation is not only an unsurgical but an equally dangerous operation. It has all of the disadvantages and dangers of a simple vaginal hysterectomy without a single point in its favor.

I have seen one of the most prominent French surgeons, in performing a vaginal hysterectomy by morcellation, nearly lose his balance by the sudden delivery of the uterus while making strong traction upon it. Fortunately for the patient, the uterus was free from adhesions.

It is impossible for an operator to know until the operation is nearly complete whether or not adhesions are present, and the necessary manipulations in all vaginal sections are so rough and uncertain that serious or fatal accidents are likely to occur at any time.

Abdominal myomectomy is indicated when a subperitoneal fibroid has a distinct pedicle and it is thought desirable to save the uterus.

Castration for uterine fibroids is undoubtedly indicated in certain cases. Hæmorrhage is controlled in three quarters of the cases, and in three fifths there is a decrease in the size of the uterus. This operation should be employed more frequently than is the case at the present time. It is contra-indicated in large tumors in fibrocystic and soft fibroids, and in small tumors giving rise to serious pressure symptoms.

We have been taught in the past to look upon fibroid tumors of the uterus as innocent growths, which, causing but little trouble, eventually disappear after the menopause. While this is true in some instances, we know from experience gained in pelvic surgery that the history of the majority of these growths force us to a directly opposite view.

First, let us study the effect of these tumors upon neighboring and distant organs, and, second, the degenerations which take place within the growths themselves.

The Fallopian tubes are frequently found to be inflamed, and in some instances distended and filled with pus or blood. I was present at the post-mortem examination of a patient who had died suddenly after the application of electricity to a large fibroid. Several ounces of pus were found in the pelvic cavity, which had escaped from a rupture in the walls of an immense pyosalpinx.

As the result of a large operative experience, I believe tubal disease must be carefully taken into consideration in determining the treatment in cases of uterine fibroids. If the physical examination revealed the condition of the uterine appendages, the solution of the problem would be simple; unfortunately, however, if the tumor is of any size, it so completely fills the pelvic cavity that a thorough palpation is impossible.

The distant organs most liable to become affected by fibroma are the kidneys, liver, and heart. The changes in these organs are produced by obstruction to the circulation and also by direct pressure. Grave kidney disease is caused by pressure upon the ureter. Again, the heart may be hypertrophied or undergo degeneration, and, finally, the liver may become fatty. These pathological conditions are, as a rule, only observed in large tumors.

The mechanical friction produced by fibroid tumors causes peritonitis and adhesions in many instances. This complication is not only serious on account of the distressing symptoms produced, but it often endangers life and always increases somewhat the mortality following hysterectomy.

The hæmorrhages occurring in some cases are a serious complication, as the loss of blood is often the cause of death. So, too, the pain produced by the pressure of the tumor may so exhaust the patient that a fatal ending results.

Having briefly pointed out the lesions produced by fibroid tumors, I shall now consider the changes which these growths fre-

quently undergo. These changes are in some instances inflammatory in character, and become serious either from an extension of the inflammation to the peritonæum or from suppuration taking place within the tumor itself. The causes of the latter complication are either a cutting off of the blood supply to the tumor as the result of compression of its vessels, or septic infection following operative interference or intra-uterine exploration.

Cystic degeneration is met with from time to time, and occurs, I believe, more frequently than is generally supposed. These cystic fibroids may grow to an enormous size in a comparatively short time.

Fibroid tumors may also be the seat of cancerous or sarcomatous degeneration. Whether or not a fibroma can become a malignant tumor is as yet undecided. It is a clinical fact, however, that these degenerations are frequently observed associated with fibroid tumors of the uterus.

Among other changes occurring in fibroids, I will mention calcification, myxomatous degeneration, and softening. The latter change may be caused by pregnancy or it may be due to œdema. Again, a fibroid may remain quiescent for years and then suddenly begin to grow rapidly. I have observed this in a number of cases. It is always a serious symptom, and is due either to pregnancy intervening or to cystic degeneration or inflammatory changes.

From what we know clinically, therefore, of the lesions produced in other organs by uterine fibroids and the changes which take place within the growths themselves, it often becomes a serious question as to what is the best plan of treatment to employ in a given case.

Medical treatment can not be advised in every instance, and it would be equally wrong to urge an operation on every woman who presented herself with a uterine fibroid.

Again, even when operative interference is demanded there is much to consider before deciding upon the form of operation.

The proper management of these cases depends upon a careful study of each patient, and, although I am strongly of the opinion that a large number of uterine fibroids demand some form of operative interference, yet there is also a fair proportion in whom the indications are in favor of palliative measures.

The environment of a patient must be considered, other things being equal. Thus, a wealthy woman may afford to try palliative

measures before resorting to more radical means, while a poor woman must of necessity seek immediate relief from symptoms which interfere more or less with her earning a living.

The characteristics of a tumor are important to consider. A small growth which produces no pressure symptoms or serious hæmorrhage may be treated medically or castration may be performed. Fibrocysts, soft fibromata, and rapidly growing tumors require a hysterectomy in all cases.

The various changes and degenerations and the lesions produced by a fibroma in other organs must be carefully studied. Pregnancy is a serious complication, and may necessitate immediate operation. Although the physical condition should be taken into consideration, yet we should not lose sight of the fact that many patients can not possibly recover their strength until the cause of the lowered vitality is removed.

The age of a patient will at times determine the plan of treatment. Thus, a woman who is nearing the menopause, and who has a small tumor which has been quiescent for some time and causing no pressure symptoms or serious hæmorrhage, can well afford to try the effect of medication with the hope that the "change of life" will cure the disease. A younger woman, on the other hand, can not with safety allow the tumor to remain.

Finally, certain rare forms of broad-ligament tumors are so situated that their removal is extremely dangerous. It is safer, therefore, to use palliative methods in these cases rather than subject the woman to the risks of an operation.

REMARKS ON THE USE OF THE BURIED PERMANENT SUTURE IN ABDOMINAL SURGERY.*

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What is the best method of closure of the wound in cœliotomy? is a question which is of interest to all abdominal surgeons. What is

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desired is a method which will secure accurate coaptation of the wound, which will favor primary union, and which will prevent the subsequent occurrence of ventral hernia. The original and simple method of a through-and-through suture has been tried and found wanting. Both primary suppuration and subsequent hernias are of too frequent occurrence after this method to make it appeal to surgeons desiring to do the best possible work. I have no experience with the use of catgut or other absorbable material in the closure of the cœliotomy wound, but the results which are reported from Germany are not such as to induce me to make use of the method. Winter (*Bauchnaht und Bauchhernie*) gives eight per cent. of hernias as following the use of the buried-catgut suture (*Verhandlung der deutsch. Gesellschaft für Gynaecologie*, 1895, p. 581). The buried permanent suture has been employed for the closure of cœliotomy wounds since May, 1887, when Dr. Schede, of Hamburg, first used silver wire as a buried suture in the closure of an enormous umbilical hernia with wide diastasis of the recti muscles in the case of an eighteen-months-old child. Since that date Dr. Schede has continued to use silver wire as a buried suture, and reports very successful results, both as to primary union and as to the prevention of subsequent hernias (*Ueber den Gebrauch der versenkten Drahtnaht bei Laparotomien und bei Unterleibsbrüchen, Festschrift zur Feier des 70. Geburtstages Friedrich's v. Esmarch*, January 9, 1893).

The favorable opinion of Schede concerning silver wire is borne out in the experience of the general surgical and gynæcological departments of the Johns Hopkins Hospital, where for some years silver wire has been used as a buried suture. No statistics are available as to the exact results secured, but, in a personal interview with Dr. Clark, until recently resident gynæcologist, I have learned that the percentage of suppurations has been low, and that the number of sutures removed has been insignificant.

In June, 1891, Dr. George M. Edebohls, of New York, first employed silkworm gut as a buried suture in the closure of cœliotomy wounds, and, beginning with May, 1892, he used this method of suturing systematically in his abdominal work (*The Prevention of Hernia after Incision of the Abdominal Walls, New York Journal of Gynæcology and Obstetrics*, January, 1893). In the same journal for May, 1896, under the title *What is the Best Method of making and closing the Cœliotomy Incision?* Dr. Edebohls reports that

his results with this method of suturing the cœliotomy wound were poor. He states that in his experience between five and ten per cent. of all sutures thus employed caused suppuration, and were either discharged spontaneously or required removal in order to secure closure of the wound or suppurating sinuses. He also states that in many cases when aseptic (*sic*) closure of the wound and primary union had been obtained, that suppuration followed, in some cases in a few weeks, in others after some months, and in one after two years and a half. This experience has led him to abandon silkworm gut as a suture material, and he now uses chromicized catgut instead. The number of cases operated upon by this method is not given, nor the exact number of those in which suppuration followed. Two hernias are reported in wounds which were closed with the buried silkworm-gut suture, but no statement as to the percentage of hernias is made. If no further evidence were available as to the value of silkworm gut as a buried suture in the closure of cœliotomy wounds, there would be good ground for abandoning it. My own experience, however, has been quite different from that reported.

In May, 1892, I began the use of silkworm gut as a buried permanent suture in the closure of cœliotomy wounds after seeing it used by Dr. Edebohls, and have used it from that time until the present (October 21, 1896) in all cases in which it was unnecessary to employ abdominal drainage, excepting a small number of cases in which the condition of the patient made it advisable to close the abdomen in the shortest possible period of time. During this period two hundred and ninety-seven cœliotomy wounds have been closed by this method, besides a considerable but unknown number of femoral and inguinal herniotomy wounds, and an additional number of Alexander operations. Of these cases suppuration occurred in seven, or 2.3 per cent. This percentage does not include the herniotomy wounds or the Alexander operations, which would considerably reduce it, as in not one of these operations has suppuration occurred. In these cases, when suppuration involved the deep sutures, it was necessary to remove them, and, as a matter of fact, when suppuration does occur after this method of suture, the best policy is to separate the line of union in the skin throughout the suppurating tract, so that the sutures can be promptly taken out. Of the remaining two hundred and ninety cases, and also in the cases of herniotomy and of Alexander's operation, it is interesting to

state that my experience is entirely different from that of Dr. Edebohls. So far as I know, in not a single case has a single stitch ever caused suppuration or been removed. Another interesting fact is that in only one of these coeliotomies have the sutures ever given rise to local irritation. In that case—a nurse who was a thin woman and who knew of the presence of the buried sutures—one of them gave rise to irritation, and I made preparations to cut down upon it in order to remove the supposed source of irritation. The patient demurred at this, and the stitch still remains, and has never since caused any irritation whatever.

These results are so radically different from those reported by Dr. Edebohls as to throw doubt upon his explanation of his own results. It seems to me that the explanation of the suppuration in his cases is the same as that of suppuration in general—namely, that the wounds were infected. It is contrary to general experience that an aseptic foreign body when encapsulated in the tissues should give rise to suppuration.

From the standpoint of the prevention of hernia the results have been extremely satisfactory. In one case in which suppuration occurred, and in which it was necessary to remove the deep sutures, a hernia eventually made its appearance. This patient was operated upon for tubercular pyosalpinx and tubercular peritonitis. As primary union was not obtained in this case, and as the sutures were all removed, it is scarcely necessary to point out that it has only a relative bearing upon the value of the method in preventing hernia. In a case of umbilical hernia, in a large and stout woman operated upon by this method, sound healing was obtained. About a year after the operation, during an attack of grip, as the result of violent fits of coughing, a new hernia appeared to one side of the line of union. In this case also the conditions were different from those which obtain in abdominal surgery in general. The sides of the hernial ring of an umbilical hernia do not come naturally in apposition, and must be drawn together under more or less tension, and, as a rule, the same factors which cause umbilical hernia in the first place are more or less operative to favor its recurrence after operation. These conditions are essentially different from those in cases in which the incision is made in a normal abdominal wall and immediately closed after operation. If we choose to exclude these cases as atypical, there have been no hernias in the typical cases operated upon by this method; and if, on the other hand, we do

not exclude them, although considering them atypical, the proportion of hernias is less than one per cent. It seems to me unreasonable, however, to expect an absolute prevention of hernia in all cases. A small percentage of wounds will suppurate. Many operations are done upon very stout patients having marked tension in the abdominal walls, and many more are done upon poor women whose circumstances are such that they must perform manual labor shortly after their operation. On account of these factors, which no technic can obviate, I think it reasonable to expect a definite though very small percentage of hernias.

My experience with silkworm gut as a buried suture leads me to lay stress upon the following points in the use of it: The silkworm gut should be carefully selected, and should be light in weight rather than heavy. A fine suture is more easily encapsulated than a coarse one, and in tying, the knot secured is much less bulky. The most important point in the technic is to secure absolute asepsis of everything coming in contact with the wound. This is the *sine qua non* of success, and any operator who is in the habit of having supuration follow ordinary clean operations should not make use of silkworm gut as a buried suture, as his results will surely be disappointing. The method which has been used for securing asepsis in the silkworm gut itself is to boil it for half an hour before each operation. If the bundle of sutures is not used up in one day, it is put away in a dry towel, and when again used is boiled as before. To secure the best results the abdominal incision should not be made exactly in the middle line, but to one or the other side, so that the incision goes through one rectus muscle instead of through the *linea alba*. The sutures are passed by means of a needle and carrier. The needle is introduced at the level of the aponeurosis of the abdominal muscles, passes through this, through the rectus muscle and peritonæum upon one side, and in a reverse way upon the opposite side of the wound. Three sutures to the inch should be used. In closing the incision the sutures should be tied snugly but not tightly. The ordinary square knot should be used instead of the surgeon's knot, and an additional tie should be made, and then the ends cut off as short as possible. Should the last tie become loose because the ends are cut off close, the same result is obtained as though a square knot were used and the ends cut off in the usual way. The knot secured in this way is compact, and becomes encapsulated more easily than the knot with free ends of the usual length.

The subcutaneous fat and skin may be closed either with interrupted silkworm-gut sutures, or preferably with aseptic catgut, in two or more layers, one or more of which should approximate the fatty tissues by a running suture, and another close the skin by means of the intracuticular stitch. Especial attention must be paid to arresting all bleeding points, as the success of the method depends upon obtaining primary union, which is greatly promoted by securing a dry wound.

The method of closing the peritonæum with a running catgut suture, closing the recti muscles with a second running suture, and then suturing the aponeurotic layer by means of mattress sutures of silkworm gut, has certain advantages. The peritoneal cavity is more quickly shut off, thereby lessening the chances of shock from exposure and handling of the bowels. The peritoneal surface of the wound probably is more nearly normal than when sutured by the single buried layer of silkworm gut. On the other hand, the method requires a longer time than that which has been detailed, and on this account I have used it but seldom.

In conclusion, I wish to insist upon the great satisfaction which this method of closing the abdominal wound has given to myself, and more especially to my patients. The very small percentage of suppuration, the avoidance of the necessity for removing sutures, and the reduction of the occurrence of hernias to a minimum, are factors in one's work which can be properly appreciated only when experienced.

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EDITORIAL.

THE ALEXANDER OPERATION.

We print in this issue a long and exhaustive article upon this subject by an enthusiastic advocate of its use, whose experience with it has been extensive and whose lucidity and terseness of style and cogency of argument are appreciated by all readers of medical literature. Any subject about which Dr. Edebohls may write is interesting from a literary and intellectual point of view, but this particular article possesses the added scientific value that it presents not only the author's own experience but a complete bibliography of the subject. The importance of such a paper as this is very great and we are glad to publish it.

The author presents his facts and at the end of the article gives succinctly his conclusions. These are certainly very favorable to this operation as compared to all others, which have in view the artificial fixing of the uterus in an anteverted position for the relief of retroversion and such concomitant conditions, for example, as sterility. By the author's showing, the objects sought have been obtained, in many instances, by this operation. In fact we know of no other statistics regarding partial or complete "fixation" by other means which present so excellent results. We think we may venture to say that Dr. Edebohls' paper should convince his opponents that Alexander's operation possesses advantages which no kindred

operation has. Its comparative immunity from a fatal result and from abdominal hernia, owing to the avoidance of laparotomy, and the smaller size, obtrusiveness and shorter continuance of the scars are all points of positive advantage. The effect of partial fixation or "suspension"—the object sought—can surely be achieved by this operation with more certainty than by either ventral or vaginal fixation. And yet, when all this has been said, the *absolute* value of Alexander's operation has not been proved.

It is well known to the constant reader of this JOURNAL that there is a large school of gynæcologists who have always opposed every operation which had for its object the forcible raising or maintaining of the uterus in an artificial position by artificial means—*i. e.*, those not employed by Nature in the economic distribution of anatomical cause and effect. This contrariety of opinion is not due to any opposition to these operations *per se* but arises from a fundamental difference of opinion in regard to the pathology of pelvic inflammations and of the real origin and source of the symptoms referred as a group to the conditions known as prolapse and retroversion of the uterus.

When Lawson Tait had impressed his ideas of pelvic pathology upon the profession and had excluded from this category the existence of either simple pelvic cellulitis or peritonitis, as opposed to the distinctly septic form of these diseases, it was not long before the natural corollary arose that there must be a central focus for this sepsis, and thus the uterus itself was found to fulfill all the conditions required by this theory. From that time endometritis has dominated the entire field of gynæcological pathology and it is now believed by many to be the *fons et origo* of every morbid condition, exclusive of those distinctly ascribable to traumatism or to new growths. The acceptance of this theory meant the elimination of parametritis and perimetritis as the prime factors in the mechanism of uterine displacements, it ignored the necessity of plastic work upon the cervix and floor of the pelvis, because the whole theory of this art of *repair* depends upon pelvic inflammation and its effect on deviations from the normal of the position of the uterus. So soon as the necessity for a scientific comprehension of the mechanism of uterine displacements was thus obviated and the true purpose of plastic repair began to be forgotten, the door was opened to the general surgeon, who very properly could then see nothing in the practice of gynæcology calling for special study or knowledge out-

side the limits of general surgical laws. The treatment of the diseases of women thus became wonderfully simplified. It consisted in this: The uterus is enlarged, prolapsed, has leucorrhœa; it is therefore the seat of a septic infection. Treatment: Curette and drain. If this does not cure the patient or if the ovaries or tubes can be felt prolapsed and enlarged, the infection has extended to the appendages and the treatment is ablation of these organs with hysterectomy. Again, if there be no evidence of endometritis, but the patient has prolapsus uteri and perhaps is advanced in life, the simplest and approved treatment is likewise *hysterectomy*—the ablation of a useless and painful organ. Thus, at one fell swoop the patient is deprived of everything in her pelvis except bladder, rectum and intestines and so, in the simplest manner, is presumably cured of all gynæcological symptoms. All this is so simple, that it is no wonder that general surgeons laugh at the pretense to specialism of gynæcologists. They treat these cases, undoubtedly upon general surgical principles and according to their lights. Some time, however, an enterprising man will doubtless visit our almshouses and hospitals for chronic diseases, from which already faint cries have been heard, and compile therefrom statistics on "The Ultimate Results of Hysterectomy," which will horrify the profession.

But we have not yet finished the list of the application of general surgical laws to the practice of gynæcology. With the elimination of inflammation of the uterine ligaments as the direct factor in uterine displacements and the forgetting, as we have said, of the real purpose and value of plastic work, retroversion and prolapse, became elevated to a position of distinct diseases, for whose cure some means had to be devised. These are considered by many to be merely symptoms of the inflammatory shortening of the uterine supports or due to injuries to the pelvic floor and capable of complete restoration to the normal by the application of the laws governing the mechanics of uterine displacements. We have already stated the most advanced surgical methods adopted for the cure of these conditions, but there were some who objected to such radical measures and sought for a middle course which would obviate the necessity of hysterectomy on the one hand and would permit the acceptance of the endometritis theory of pelvic disease on the other. If retroversion be a disease *sui generis* and the direct cause of subjective symptoms, the obvious indication is to convert this malposition into anteversion and maintain the organ at that.

This was the line of reasoning which prompted Alexander and a number of others to invent operations for shortening the round ligaments and broad ligaments and for fixing the fundus or uterine attachments directly to the anterior abdominal wall. The methods of these operators differ but the object of all was the same, namely, to raise the uterus to an arbitrary position in the pelvis and to maintain it anteverted in that position by artificial means. We use the word *artificial* designedly, for no one maintains that in a state of health the round ligaments support the uterus or even preserve its anteversion. Normally these ligaments lie in a semi-curved position in the pelvis, exerting no traction whatever upon the uterus, and they are never put upon the stretch unless the organ be temporarily much depressed below its normal plane, drawn upward by pregnancy or thrown back beyond the transverse median line of the pelvis. The extent of its function is to act as an adjuvant to the other and more powerful uterine ligaments and as a check to the uterus when its balance is temporarily disturbed. The round ligaments are never found, in a state of health, permanently stretched and taut, as occurs after Alexander's operation.

We asserted that, to a number of gynæcologists, even among those who accept the facts which Dr. Edebohls has brought out in his paper and who would grant the superiority of this operation to others of the same character, the absolute scientific value of Alexander's operation still remained unproved. We will now succinctly state the position of these opponents and show that their rejection of all operations of the class to which Alexander's belongs is founded upon a fundamental difference in belief regarding the pathology of the conditions, of which these operations claim to be the indications.

In the first place, *endometritis*, except by direct contagion from gonorrhœa or from puerperal sepsis is believed to be a very rare disease and then occurs in its simple form, which is no more serious in its nature or consequences than a simple vaginitis. The congestion and enlargement, with leucorrhœa, which appear in most cases of long-standing laceration of the cervix with prolapsus and retroversion of the uterus, are not believed to be a true endometritis but to be due to a condition of chronic engorgement of the uterine vessels, the cause of which is to be looked for in the ligaments where the normal circulation of blood is interfered with. The leucorrhœa, they maintain, is but an effort on the part of the uterine glands to

relieve the engorgement—a phenomenon commonly observed in all organs, having a mucosa, throughout the body under similar circumstances. They bring forward, in proof of their theory regarding so-called endometritis, that thousands and thousands of such cases have been restored to perfect health by treatment which never invaded the uterine cavity and applied itself entirely to the neighborhood of the uterine ligaments, by the manual reposition and temporary support of the uterus with pessaries, judiciously used, and the complete ignoring of the endometrium. It is maintained that were the uterus itself a septic focus and the cause of these conditions, nothing short of a direct attack upon the endometrium could effect a cure. When the uterine ligaments, which support the uterus by traction and countertraction, allowing it to swing within limits, as a ship's lamp is supported by its chains, become inflamed, a shortening of the ligament affected takes place and the balance in the traction force of all the ligaments becomes lost; while the organ itself must be drawn to one side, depressed, raised, thrown backward or forward, according to the position or extent of the inflammatory shortening of the ligament or ligaments affected. But the slightest deviation of the uterus from the plane at which it is normally supported must affect its circulation, especially that of its veins which do not possess valves and maintain the regularity of their flow by their tortuous and convoluted position. It is easy to see that a marked change in the position of the uterus must interfere with the position of the veins first and thus destroy the compensatory balance between the inflow of arterial and the outflow of the venous blood.

Prolapse of the uterus and vagina is believed to be due to a rupture or overstretching of the fascia which forms the pelvic floor and is the support for the large pelvic vessels which lie above and beneath it. Moreover, as the whole of the pelvic fascia is continuous, the loss of integrity in one part affects the integrity of all the rest. Therefore, when the fascia covering the levator ani is torn and retracts, the supporting power of all the uterine ligaments is weakened, the uterus prolapses with its appendages and may become retroverted, while all the blood-vessels in the pelvis suffer from want of support, all the organs become enlarged from hyperæmia and prolapse. In such a case, if the uterus is not subinvolved and there be no inflammatory shortening of the uterine ligaments, a uniting of the separated edges of the torn levator fascia will tighten

the fascia throughout the pelvis, the uterine ligaments will resume their normal action, all the pelvic organs will rise and return to their normal size and the patient will be restored to complete health.

To those holding these principles of uterine and pelvic pathology, retroversion is merely a symptom, not directly of consequence, while uterine prolapse is also a symptom entirely outside and apart from the uterus itself. The indications, therefore, except in the one case where the uterus remains subinvolved from laceration of the cervix, are to restore the integrity of the pelvic fascia, whether this be functional or due to traumatism, either by treatment or by plastic repair. It is argued that the uterine ligaments, when restored to health, can and will perform their function of supporting the uterus and blood-vessels much better than this result can be obtained by any means devised by man and not adopted by Nature.

That good results are sometimes obtained and, perhaps, even in a large proportion of cases, after a certain length of time, by all operations which succeed in suspending the uterus at an arbitrary level in the pelvis must be acknowledged. This suspension puts the pelvic fascia upon the stretch and thus provides a certain support to the uterine vessels. Even if this support be not the normal one, and the vessels are dragged out of their normal length or position, they will after a time accommodate themselves to the altered position of the uterus and the balance in the circulation is thus gradually restored. A common example of this is that of a many years' prolapsed and retroverted uterus, fixed by adhesions in the hollow of the sacrum. Such a case, who will generally come to us for some other trouble, will give a previous history of symptoms distinctly referable to the conditions which we find, yet she will say that after many years her symptoms gradually improved and finally left her. Her objective symptoms still remain, except that we will find the uterus not overlarge in size and its normal circulation restored.

That "suspension" of the uterus may finally accomplish a good result is not, however, according to its opponents, a sufficient vindication of its adoption. Its *absolute* value, they maintain, is negatived for the following reasons: 1. It is not *indicated* by the conditions for which it is employed, because it does not restore the uterus to the plane and position in which it normally rests but places it in abnormal and arbitrary position; while, on the other hand, there exist well-known means (which are the true indications) by which the uterus may be enabled to find its normal support and true plane

and to maintain it. 2. That, though good results may be obtained by "suspension," perfect results are much more frequently arrived at by these other means referred to, which are anatomically indicated. 3. When "suspension" is used as an *indication* for retroversion, an undue importance is attached to this symptom, which overshadows and causes to be overlooked many important indications of diseased conditions, which are frequent accompaniments of retroversion, namely, subinvolution of the uterus and injuries to the pelvic floor, which may be relieved for a time by the operation but will later assert themselves. 4. Wherever prolapse of the uterus and vagina accompany retroversion, it is found necessary by those who perform Alexander's operation to add to it plastic operations upon the cervix and vaginal walls. This, it is contended, is a work of superfluity and shows the inherent weakness of either Alexander's operation or of the plastic work. The object of the latter and its only excuse is that it is capable of restoring not only the vagina and uterus to their normal size but of restoring the integrity of the pelvic fascia as well. If plastic work can not do this by itself, it is a humbug; if it can do it, they argue, then Alexander's operation not only is unnecessary but directly interferes with the effect of the plastic work.

These are the grounds of contention of those who, holding to the pathology of pelvic inflammation detailed above, oppose all operations for partial or complete "fixation" of the uterus. Admitting their premises, this opposition is a logical one and fundamentally sound. On the other hand, those others, who, like Dr. Edebohls accept the more recent theory of pathology, of which endometritis is the head and front, and who do not believe that to plastic work can justly be ascribed all the merit which the others claim for it, are equally logical in proclaiming the merits of Alexander's operation and in practicing it. "Live and let live" is an excellent motto in medicine as elsewhere, and we may be absolutely certain that, in the end, "the truth will prevail."

CORRESPONDENCE.

SAN JOSÉ, CAL., *October 17, 1896.**To the Editor of the American Gynecological and Obstetrical Journal:*

SIR: A month ago a mother called upon me with her daughter, Laura, B., aged four years nine months, to be examined as to an enlarged abdomen. Our friends Drs. Perrin and Ulrich coincided with our diagnosis of some abdominal tumor. She had been previously treated for ascites. One week later we opened the abdomen and removed an ovarian multilocular fibrocystoma (left side) weighing three pounds and a half. The child's weight prior to operation was thirty-four pounds. The tumor was attached to the greater omentum above and to the left of the umbilicus, in which attachment were two large arteries and veins. The child made an uneventful recovery. We inclose photographs of child prior to operating and the tumor, showing the relative size, and wish to ask for information relating to such pathological conditions in subjects so young and the ætiology of these tumors at such an early age.

FRED BANGS, M. D.

REVIEW.

A TREATISE ON OBSTETRICS. For Students and Practitioners. By EDWARD P. DAVIS, A. M., M. D. Lea Brothers & Co., Publishers, Philadelphia and New York.

When one considers the unusually large number of excellent treatises on obstetrical subjects that have appeared during the past year, he would think it difficult to find a place for another; and yet the volume before us is possessed of merits that demand a prominent place in the literature of this important subject. It is in reality "to the student a text-book and to the practitioner a work of reference, in which both the science and the art of obstetrics are fully set forth in accordance with the most modern results of investigation and experience." The work is divided into sections as follows: Section I, Pregnancy and Labor; Section II, Pathology of Labor; Section III, Obstetrical Operations; Sections IV, Abortion, Extra-uterine Pregnancy, the Puerperal State; Section V,

Infancy in Health and Disease; Section VI, Diseases of Infancy; Section VII, The Jurisprudence of Obstetrics.

In Section I both the differential diagnosis and the diagnosis of advanced pregnancy are considered thoroughly, and the importance of pelvimetry is impressed upon the reader. In this chapter some plates are exhibited showing the application of the Röntgen rays in obstetric diagnosis. This method of diagnosis has been employed for too short a time for the determination of its true value, but the results thus far have been so remarkable that great advantage from it can be looked for with confidence.

The chapter on the physiology of pregnancy is extremely interesting and eminently practical. It contains some useful formulæ and many valuable therapeutical suggestions. The pathological conditions of pregnancy are treated at length and with a regard to detail that will be appreciated by the practitioner who consults its pages. The bacteriological investigations are illustrated with well-executed plates. The author states that the facts, so far as ascertained, point to the conclusion that certainly no actively pathogenic germs are found in the genital canal of the normal pregnant patient. When, however, the resisting power of the tissues is impaired, micro-organisms ordinarily not pathogenic may become so and occasion septic infection. Investigation has shown that the augmented secretion of the vagina during pregnancy, usually of a distinctly acid reaction, is an efficient germicide. The practical inference from this observation is found in the fact that healthy patients need no douches before labor, while those in whom a pathological process has produced an abnormal vaginal secretion require vaginal douching sufficiently often to thoroughly remove disease secretions. It would seem to us that rather than to attempt to distinguish in each case the normal vaginal secretion from the abnormal, and to use the douche in only the latter class of cases, it would be a simpler and safer rule to continue as heretofore with the douche in all cases before labor.

In reading the volume before us it is much easier to commend than to criticise. To enumerate the many commendable points would be tedious and useless. The sections that seem to us most praiseworthy are those on Pathology of Labor, and Obstetrical Operations.

Obstetrical surgery, which of late years has had so conspicuous a development, has received special attention. The care taken

in the description of the minute details of the technic of operations is especially deserving of praise.

We heartily wish that the author had omitted the chapter on gynæcology. It is in no way up to the standard of those upon obstetrics. It is unsatisfactory and misleading. It claims the treatment of displacements of the uterus and the results of lacerations as the legitimate field of obstetrics, because the resulting disability was caused by injury in some previous labor.

If the cervix is lacerated and symptoms are thought to arise from this, the reader is advised to amputate the cervix; then, if the condition just described is complicated by obstinate retroversion, he may supplement the previous operation by ventrofixation of the uterus. The operation is then described as though there was no other possible method of treating a retroverted uterus.

The whole subject of lacerated cervix, curettement of the uterus, and retroversion is treated in less than five pages. The author should have done justice to the subjects or omitted them. The latter course would have been preferable.

The section upon Infancy in Health and Disease is well written, and goes more deeply into the subject than most text-books on obstetrics that have appeared.

The Jurisprudence of Obstetrics adds some interesting and valuable chapters to the volume.

Extensive experience both as a teacher and clinician has enabled the author to meet the needs of students and practitioners of obstetrics in a highly satisfactory manner, and he is to be congratulated upon the production of such a work.

To the publishers praise is due for the excellent typographical work and for the neat and artistic appearance of the book.

(G. H. M.)

TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, October 20, 1896.

The *President*, H. C. COE, M. D., in the Chair.

Dr. GEORGE W. JARMAN reported a case of

Encysted Kidney.

The specimen which I present was removed from a Mrs. S., who came to me for examination September 12, 1896, giving the following history:

The patient is twenty-five years old, married, and has had two children, the last eleven months since. She is rather thin and anæmic. Menstrual history is negative. She had always been in fair health until eighteen months since, at which time, after straining at stool, she felt something in her abdomen, as she expressed it, "give away," and at once began to have pain in her left side. Since this time she has always had more or less pain in her left side, extending through to her back. The erect position or any undue exertion intensified this symptom. She had been practically an invalid for the last four months. Upon examination, I found a movable tumor a little above the brim of the pelvis, which could be pushed down almost into the pelvis and up to what would correspond with the location of the left kidney. The mass was somewhat larger than a kidney and quite soft. When the tumor was pushed down to the brim of the pelvis no kidney could be discovered on the left side in its usual location, whereas the right kidney was palpated easily. The diagnosis of an enlarged movable kidney was made. I determined to try an abdominal supporter with a kidney pad. In the course of a week this was found to be ineffectual, and the patient returned saying that her pain was even greater than when I had last seen her. Being convinced that an operation only seemed to offer hope of relief, I sent her to the New York Cancer Hospital, where I operated upon her on October 14th.

The examination of the urine showed a very slight trace of albumin, but in other respects normal. There was nothing unusual

about the operation, in which I was very ably assisted by Dr. C. N. Dowd. The usual lumbar incision, extending from the last rib down to the crest of the ilium, was made. The renal blood-vessels and the ureter were ligated with heavy catgut. The fascia was united by a continuous suture of the same material, as was also the skin. The patient so far has had no trouble of any kind. Her highest temperature has been 99.5°. On the second day after the operation the patient passed ninety-one ounces of urine, and on the third eighty-nine. No microscopical examination of the kidney has yet been made, but from its gross appearance one would suppose that it is simply a multilocular cystic kidney.

DISCUSSION.

Dr. C. A. VON RAMDOHR inquired where the temperature was taken, whether under the arm, in the rectum, or in the vagina.

Dr. H. N. VINEBERG inquired how it was possible to determine the presence of the kidney in the loin. Some years ago he had a case of a movable abdominal tumor which felt about the shape and size of a kidney, lying upon the uterus. He sent the case to Dr. A. J. McCosh, who had had a good deal of experience, and who made a thorough examination, taking her into the hospital, and even under ether he could not determine whether or not it was a kidney. It proved to be an ovarian cyst with a very long pedicle.

Dr. JARMAN, replying to the first question, said that he never permitted any temperature to be taken in the axilla. The temperature of the patient the first day was taken *per rectum* and after that *per mouth*. He is well aware of the fact that the hospital reports are not absolutely accurate, even when taken by the mouth. In illustration of that fact, he would say that he has a patient whose mouth temperature was 96° to 97°. The house surgeon called attention to the temperature that she was running, and on taking it *per rectum*, it was absolutely normal. In regard to determining whether it is a tumor or a floating kidney, he does not believe it is possible for any man to be absolutely certain, but fair inferences can be drawn. Dr. Abbey always requires his patients to relax the abdominal walls by posture as much as possible; then the patient takes a deep inspiration. The diaphragm comes down low, and, instead of pressing the hand down directly in front of the ribs, he pushes the hand upward as if he were going to reach up under-

neath the ribs, and as she begins to expire he forces the hand down, and if the kidney is there it can be detected by making counter-pressure on the back. He had no trouble in determining that the woman had a normal kidney on the right side, and utilizing that fact on the other side, could draw a very fair inference. But an important point is in determining whether the tumor is intrapelvic. If he can push it down into the pelvis he determines that it is a pelvic tumor. If he finds it can be pushed up, it is from above. He desires also to say that the only diuretic used in this case—and the large amount of water the patient passed will be noticed—was salt solution. He gave a quart of salt solution with a high rectal tube every four hours; also gave her plenty of water by the mouth, but did not force it upon her. In cases bordering on puerperal eclampsia, or of renal insufficiency, he has found this to be the best diuretic that he has tried.

Dr. J. RIDDLE GOFFE said that he regarded Dr. Jarman's exposition of the differential diagnosis as very clear, and yet the crucial test of finding the tumor in the pelvis would not always exclude the possibility of its being a kidney. He remembered a case of Dr. Mundé, reported to this Society, where a kidney was found in the bottom of Douglas' *cul-de-sac*. That is an unusual condition of things, but does sometimes obtain. He does not believe there is any way to be absolutely sure that a kidney is not in its proper position in a woman of average dimensions unless it can be positively located elsewhere.

A Case of Symphyseotomy; Final Report.

Dr. VON RAMDOHR said that he had reported to this Society a case of symphyseotomy three years ago. After the symphyseotomy there was perfect healing and union of the bones. The woman was confined again about a year ago, after having refused to be delivered prematurely after a craniotomy. This was as good an indication for symphyseotomy as he had ever seen, as the future proved.

DISCUSSION.

Dr. SIMON MARX regarded the case as very interesting, for the reason that the number of such cases reported is very small. As a rule, after symphyseotomy the pelvis is so materially increased in size that the second labor is spontaneous. It was remarkable that

the doctor should have got such firm union as again to obstruct the pelvis.

Pyosalpinx.

Dr. RALPH WALDO reported a case which had come into the hospital about eight months ago, with gonorrhœa, extending into one or both the tubes, with quite an acute peritonitis, temperature being between 103° and 104°. The abdomen was opened and the right tube found to be extensively diseased, as was also that ovary to a limited extent. The other tube seemed to be normal, excepting that the covering was very red. The right tube and ovary were removed and the others were left in place. There was pus in the case and the pelvis was packed, and she made a good recovery. He had examined her again to-day, and finds that everything is normal except for the loss of the tube and ovary. There is no tenderness in the pelvis, no trouble with her menses. He reports the case because the disease evidently extended from without, and was undoubtedly the result of gonorrhœa.

DISCUSSION.

Dr. G. C. FREEBORN said that in his experience where you get pus in one tube you always find evidences of it in the other.

Dr. VINEBERG said he had had a somewhat similar case. The patient, a young married woman, thirteen months after the birth of her first child, contracted gonorrhœa from her husband. He saw her in the acute phase of the disease, which was extending up into the uterus. She had quite a thickened tube on the right side, and he curetted her, with the result that the mass on the right side became larger and she had an acute attack which kept her in bed for about five weeks; but under proper treatment the mass gradually disappeared, so that on examination there could only be discovered a slight thickening of the tube and enlargement of the ovary. She went on for three months without any symptoms, at the end of which she had another attack of pain, and on examination he found a mass on the right side of the uterus the size of a hen's egg. Under rest and treatment this disappeared again. This state of affairs continued for eighteen months, when he concluded to remove the mass on the right side, and did so through a vaginal incision. The tube and ovary were about the size of a hen's egg, and there was pus in them. The left tube and ovary were appar-

ently normal, and he left them. Since then the patient has been entirely free from symptoms. This was eighteen months ago, and, on examination recently, he could not make out any thickening of the tube on the left side. His experience is that in acute cases of gonorrhœal infection it is best to treat them with palliative measures for a continued time, and in that way the masses will often disappear. He recalls a case he had three years ago in which he urged operation, but the patient went into a hospital where conservative methods were followed, and he was surprised, on examining her three months later, to find that, as far as one could tell, there was a total disappearance of the masses on the side of the uterus.

Dr. WALDO said that he did not wish to be misunderstood; this was a case of pelvic peritonitis. It was the only case of acute gonorrhœal infection that he has ever opened the abdomen for. One tube was very badly affected and the other very slightly. As to Dr. Freeborn's statement, his experience is that it is very, very seldom that both tubes are not involved, even though one may be at a very much earlier stage than the other, and that experience has been carried out by finding it necessary to go back for a second tube and ovary where apparently it was not involved at first. In this case, however, eight months have gone by and she is apparently all right. These tubes that are involved, as Dr. Vineberg has stated, will recover so that they can perform the physiological function. He has had three cases of gonorrhœal salpingitis where it was determined that both tubes were involved, and they afterward became pregnant because of this so-called palliative treatment, which he believes is the best in these cases.

Dr. ARTHUR M. JACOBUS said that, in looking over the old *Transactions* of the Society recently, he noticed that in the year 1885 this very question came up during a discussion on pyosalpinx opened by the late Dr. James B. Hunter, and the question was discussed as to whether gonorrhœal infection was ever unilateral or not. Dr. Emil Noeggerath, then quite an authority on the subject, was present, and, on being asked by Dr. Bache Emmet whether it was common for only one tube to be involved in gonorrhœal salpingitis, said that in his experience he had found that unilateral pyosalpinx was very rare, so that he could not say how often this condition prevailed in specific cases; but, reasoning from analogy, he could see no reason why the disease should not be limited to one side, since one epididy-

mis frequently became involved as a result of gonorrhœa in the male, the other being spared. The discussion to-night simply illustrated how unsettled the topic under discussion was and how often questions recurred or traveled in circles.

Atrophy of Vagina following Hysterectomy.

Dr. E. E. TULL reported a case of senile atrophy of the vagina after removal of ovaries and uterus. He had had two or three such cases, which are exceedingly annoying because of an intense inflammation of the vagina. He can not account for it, and hardly knows how to treat them. In one case he can not introduce his finger without the greatest amount of pain.

DISCUSSION.

The PRESIDENT regarded the subject as a very important one. He was quite sure that every one who has followed such cases has seen these results, especially in private practice.

Dr. W. E. PORTER said he sympathized with Dr. Tull, because he has recently seen several cases of precisely the same condition, and two of them were not hysterectomies, but the ordinary senile atrophy which had taken place. The greatest relief he has found has been through the application of heat or cold by means of an ingenious contrivance got up by Dr. Kemp, which consists of a double-current catheter with a large rubber bag, by which the current of water can be kept at a given temperature, giving dilatation and temperature change. About a month ago he had a case in which he prescribed calendula cerate for the patient, applying it over the surface of the vagina, and the result was remarkable.

Dr. H. J. BOLDT said that he had had to some extent the same experience as the others present where atrophy has occurred. He has had experience with vaginitis, but has found no specific remedy. Sometimes one remedy will operate very well, and sometimes others will. As a rule, it has been a very obstinate form of disease.

The PRESIDENT said that he remembered one case of an unmarried woman, who was terribly affected in this way after abdominal hysterectomy, and almost lost her mind. She gradually got better until she became entirely well. Treatment was of little benefit. The particular cause of the irritation is not clear. Sometimes it may be due to too vigorous aseptic preparation of the genital

tract, or it may be of reflex origin. He had seen the vagina almost raw. In the case of married women the results of atrophy of the vagina may lead to matrimonial unhappiness.

Ovariectomy under Local Anæsthesia.

Dr. H. J. BOLDT reported a case of the removal of an ovarian tumor from a patient who had cardiac disease without the use of anæsthesia except locally in cutting through the skin. He used about ten drops of a four-per-cent. solution of cocaine. After the peritonæum was once opened he judged from the actions of the patient that the pain was very severe, especially when the ligature was tied around the pedicle. No impression was made on the action of the pulse during the operation, and the recovery was perfectly smooth.

DISCUSSION.

Dr. MARX said he thought this was quite a frequent thing abroad, and it is recommended by a German physician named Schleich, who uses very minute doses of cocaine and morphine, and who claims to have done a number of operations without any pain and with no shock.

Dr. PORTER said that it would depend entirely on the nature of the cardiac lesions. In a large majority of the cases of valvular diseases the heart acts well under ether. But any considerable degree of dilatation or a fatty condition of the heart is to be feared.

Dr. GOFFE stated that he had had no personal experience worthy of record with this method, but he would like to refer to some operations by Dr. John A. Wyeth, who is using it quite commonly, and whom he had seen a few months ago painlessly close a pytaline fistula of the cheek following removal of the jaw for malignant disease, using a preparation of cocaine and morphine in a very small amount. It was surprising to see how small an amount of the anæsthetic was efficient in obviating all pain by using it carefully between the layers of the skin. He had also seen the same surgeon operate successfully and satisfactorily for appendical abscess, using this method of instillation anæsthesia.

Appendicitis complicating Pregnancy and Labor.

DISCUSSION.

The PRESIDENT stated that he desired to bring before the Society for discussion the subject of appendicitis complicating pregnancy and labor. Two or three cases had come under his observation during the summer, and it might be interesting to compare notes as to how far a previous attack of appendicitis, in which there has been no operation, complicates pregnancy and labor. In the cases which he had observed there had been no unfavorable results. The convalescence was perfectly normal, and, although the patient in one case had a slight attack afterward, it was not necessary to operate, and the puerperal state had no influence on the appendicitis itself. There had been cases, however, in which bad results had been reported.

Dr. JARMAN said that he had a patient four months and a half pregnant who had appendicitis. She had sharp pain, quite a little temperature, and he determined in the face of the pregnancy to do the operation. There was nothing unusual about the operation. Found only a small amount of pus in the appendix. She was confined in a normal way, and had no trouble at all.

Dr. VINEBERG said that he could not see why the incision in the abdomen in pregnancy for appendicitis should be any more dangerous than opening the abdomen for ovariectomy. It has been done frequently, with no bad results toward the course of pregnancy or time of labor. There are fifty-four cases now reported in which even a myomectomy was done during pregnancy and thirty-four went on to full term. It depends on the situation of the growth and the attachment to the uterus whether its removal can be done with impunity. He had a patient, a delicate girl, who married and shortly afterward became pregnant, enjoying excellent health until, when in the eighth month, she was suddenly taken with a chill and pains all over her body. He saw her the next day. The uterus seemed to be normal; the pains were vague in character, distributed all over the body; she had a slight temperature and a pulse of 96; was rather tender over the muscles in various parts of the body. He looked upon the case as one of cold, and did not consider it serious. After two days he was struck with the disproportion between the pulse and the temperature, the temperature being about

100° and the pulse running up to 120. The abdomen was beginning to become tender, and a consultant who was called in after an examination made a diagnosis of appendicitis. Temperature continued to rise, and the pulse went to 130. She was seen then by a surgeon, who had no hesitation in diagnosing appendicitis and pus. Operation was done, and the appendix was found to all intents and purposes normal. Not wishing to complicate matters, he left it, and enlarged the incision to see if there was any other lesion which might account for the patient's condition, but was unable to find any. He closed the abdomen, and she did pretty well for the next twenty-one hours. Then for a few hours her symptoms became alarming. On the day following she had vomiting, temperature 101°, pulse 120, and abdomen growing more and more distended. Decided Tuesday morning, sixty hours after the laparotomy, to empty the uterus, and, wishing to do it as safely as possible, introduced a bougie and waited for twenty-four hours. The cervix opened up to the extent of a fifty-cent piece, but that was all. At the end of thirty-six hours her condition was still more critical, abdomen very much distended, pulse running up to 140 and 150, and consequently decided to empty the uterus rapidly by *accouchement forcé*. Did so, and the patient came near dying on the table from the anæsthetic, and there was a good deal of shock. Delivered her in twenty-five to thirty minutes. The next twenty-four hours thought she would not recover; temperature kept rising; distention did not diminish. As soon as the uterus was emptied it seemed the distended bowel took its place, and the patient was beginning to vomit. Thirty-six hours after she was delivered she began to improve; temperature went down to 102° and pulse to 140. Even at this time a consultant who saw her considered the case as a hopeless one. She has gone on to recovery. The question arises, What was the cause of the peritonitis in her case? Since then he had been called to another case, who was pregnant in the ninth month, perfectly well until she was taken with a chill, when her temperature ran up to 103°. Her physician had applied ice to the abdomen, gave opium, and kept the patient in bed, and the temperature was going down and she was getting along very well until the fifth day, when the temperature suddenly went up to 103°, pulse 120, and there was a good deal of abdominal tenderness. The doctor had diagnosed appendicitis. Although Dr. Vineberg agreed with the diagnosis, the case did not strike him as an urgent one for operative inter-

ference, and he advised palliative measures. She has progressed favorably, and has since been delivered at full term of a living child. Her physician later informed me that the puerperium was normal, and that she has remained well.

Dr. MARX said that, apropos of Dr. Vineberg's case, he would present an interesting one which occurred last fall. A young woman who had had three attacks of appendicitis became pregnant. She sent for him early one morning, saying she was in labor. Examined her and found she had a temperature of 103° and rather rapid pulse; labor pains not present. Within twenty-four hours pains commenced, and she suddenly went into collapse. There had been no fresh attack of appendicitis, and from the history he supposed she had ruptured an appendical abscess. He did not do what Dr. Vineberg did—try a bougie. He did first what the doctor did last, and what in his opinion should have been done first—emptied the uterus by means of the hand at once, and delivered her of a living child. Patient laparotomized, and the small pelvis was full of pus, but, in spite of this dangerous complication, she made an uninterrupted convalescence. The indications for appendicitis, in his opinion, are the same whether the woman be pregnant or not. Where the indications are such as to warrant a belief that pus is present, empty the abscess or remove the appendix, independent of whether she is pregnant or not. A differential diagnosis must be made between ovarian abscess, tubo-ovarian abscess, and appendicitis. The President would doubtless remember an interesting case he had in conjunction with the speaker, where they, together with another surgeon, made an undoubted diagnosis of appendicitis. The abdomen was opened, and the appendix was not even found. It was an ovarian abscess. In three cases which he recalled he had delivered women after the operation for appendicitis, the most distressing symptom being intense pain in the cicatrix or occasional attacks of semicollapse, due to stretching or tearing of adhesions inside the abdomen.

Dr. GOFFE asked what was the cause of the pus in the first case narrated by the doctor.

Dr. MARX replied that the woman had had severe appendicitis, with abscess.

Dr. VINEBERG said he still desired to emphasize the fact that emptying the uterus rapidly is not a light thing to be undertaken, and even in the most careful hands there is liable to be a danger-

ous laceration of the cervix. He admits the value of the method when forced to do it, but it should not be undertaken lightly. He thinks it is dangerous teaching to say that it is easily done and entirely free from danger.

Dr. MARX inquired whether Dr. Vineberg knew of any obstetric operation which is free from danger. In the hands of a tyro even a minor operation will cause lesions of the perinæum or vagina or cervix, but he maintains that in the hands of a man who has eyes at the ends of his fingers and brains at the end of his arm the cervix will not be torn, and if it is it makes little difference. Even in normal cases large tears are got. He has done now fifty-four or fifty-five elective accouchements for every conceivable condition and complication, and has had only one deep laceration of the cervix that warranted him in sewing it up. *Accouchement forcé* is as safe an operation as we have, as proved by the records.

Dr. VON RAMDOHR said he agreed with Dr. Marx that any obstetric operation is dangerous if not properly indicated, and any operation, even if indicated, may be dangerous in the hands of the non-expert. The Society should be careful of the position it takes in regard to indorsing *accouchement forcé* indiscriminately. A great many women will have their cervices torn right up into the peritonæum, and, in spite of the best sewing afterward, they will succumb. He has seen three of these cases die from shock and hæmorrhage. There is an absolute field for *accouchement forcé* when properly indicated, but it is extremely dangerous in the hands of the inexperienced. He enters his protest against *accouchement forcé* being considered an easy operation.

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Official Transactions.

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TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF
PHILADELPHIA.

Stated Meeting, November 5, 1896.

The *President*, E. E. MONTGOMERY, M. D., in the Chair.

The Treatment of Fibroid Tumors of the Uterus.

By W. E. ASHTON, M. D.

(See page 748.)

DISCUSSION.

Dr. G. BETTON MASSEY: It seems to be a foregone conclusion when a Philadelphia surgeon presents a paper on the subject of the treatment of fibroid tumors that electricity should be totally condemned. I suppose the origin of that condemnation is that unfortunate characteristic of our fellow-citizens that made us all condemn the trolley car, simply because it was an electrical method of propulsion. It was too dangerous for us. Some physicians in Philadelphia said it would not be safe to drive horses, that standing alongside the track at a house would be dangerous—that it was altogether to be condemned. They not only said it individually, but, together with other good citizens, they paid a lot of money to fight the granting of the franchise which has given us when granted the present method of getting around the city—a method of transit which has made it metropolitan for the first time. I notice that those gentlemen do not refrain from using these cars now that they are in use. I have not heard of a single instance of any one being killed by the current of these cars. This, of course, is not exactly germane to the question of electricity in fibroids, except as showing an animus in all discussions of electricity in either medicine or the arts in this city. It is worthy of note, because it is peculiar to the city.

I have failed to hear any discussion of the whole treatment of fibroid tumors anywhere else on the part of surgeons where a proper and decent mention of the value of electricity was not made. Now, as to the basis for the wholesale condemnation which is contained in the paragraphs of the paper, I would like to get the facts.

I would like to know what cases, how many, and what proportion were under electrical treatment with bad results. I am quite sure that none of the experience that Dr. Ashton has obtained from fellow-practitioners has come to him from me, for my statistics of electrical treatment of fibroid are very gratifying. I recently looked them up, and I find that of seventy-five cases that had been under treatment, and whose present condition was ascertained after periods varying from eight years to two years since the cessation of treatment, eighty-five per cent. showed practical successes; or, in other words, some sixty-four in number had been symptomatically cured and anatomically dissipated or reduced. In these women the tumor had been largely reduced in about one half, and in the other half moderately reduced in size; but all were unconscious of the fact that they had any fibroid tumor left. One exception was that of a very enormous growth which made the patient look as if she had a half-bushel measure under her dress, and having gone down very slowly under electrical treatment, I suggested operation as a relief of the deformity early after the cessation of treatment; but that case refused the operation, and to-day there is very little tumor left, after going through the later stages of the change of life.

Dr. C. P. NOBLE: The paper of Dr. Ashton so well presents the present view of the proper treatment of fibroids that, in general, I think we must agree that it is the correct one. There are some points in connection with the subject, however, I feel it might be well to touch on.

I agree with Dr. Ashton that it is a safer operation to do supravaginal amputation of the uterus for fibroid rather than the total extirpation for the reason he gave—less danger of sepsis. The fact that men who have most employed total extirpation at the present time are inclining to do vaginal hysterectomies not only in small fibroid tumors, but also for inflammatory conditions of the appendages, proves that they have had results not satisfactory; whereas the men who have employed the operation of supravaginal amputation of the uterus still hold to that operation. I think that fact is a strong argument in favor of supravaginal amputation as against total hysterectomy. I would go a little further than Dr. Ashton on the question of myomectomy. I think more stress should be laid upon it than was done in the paper. I believe it is wisest to operate early for fibroids in young women, so that we

can remove the tumor and save the organs of generation. By operating early in many cases it is possible to do myomectomy, whereas later it is impossible. This applies to both abdominal and vaginal myomectomy. I have done vaginal myomectomy a number of times—perhaps a dozen—and the results have been extremely satisfactory. So much so that I know of no operation which has given me more satisfaction than vaginal myomectomy. It is quite easy by separating the vagina from the uterus or by splitting the uterus to get at the fibroid, whether inside the uterus or situated low down in the walls of the uterus either in front or behind.

Dr. Ashton advises oöphorectomy in quite a percentage of cases. My own experience has been small in this method of treating fibroids. I would not now do the operation except in very feeble patients. If the condition of the patient is satisfactory, the results of oöphorectomy or hysterectomy are about the same; and it so greatly shortens convalescence of the patient to remove the tumor that I think it is desirable to do so unless the condition of the patient forbids.

I agree entirely with Dr. Ashton as to the question of the non-innocency (to coin a term) of fibroid tumors. Perhaps my experience has been exceptional, but I have had quite a percentage of cases of sarcomatous degeneration of fibroids, and I have had quite a number of cases in which cancer of the cervix developed as a complication of fibroid tumors. I have had a larger number of suppurations in fibroids, necrosis of the tumor, calcification of fibroids in old women and degenerative changes in fibroids in old women, so that I feel too much emphasis can not be laid upon the fact that a fibroid can not be regarded as a benign tumor, which, if it does not cause death from hæmorrhage, will not trouble the patient in the future. My experience has been entirely the reverse. This is entirely separate and apart from the question of involvement of the uterine appendages. My own experience does not indicate that there is a large percentage of diseased tubes complicating. I have had a number of cases of pus tubes complicated with fibroids, but the percentage has not been large. There have been far more cases of malignant degeneration and necrosis than there have been pus tubes.

One point mentioned by Dr. Ashton—the supposed danger of removing fibroids if they are situated in the broad ligament. It is simply a question of technic; I have removed a number of fibroid

tumors from this position and every patient recovered. If the technic is varied to suit the case, it is quite as safe to remove these uterine fibroids by hysterectomy as the others. The method employed by Pryor and Kelly I have found very satisfactory; going down one broad ligament, cutting across cervix and up on the other side, renders the removal of fibroids just about as safe as the ordinary operation, and just about as simple.

It is an extremely difficult question to decide when one should not operate on a fibroid tumor. I feel myself that all the women would be very much better if the fibroids were out, but, like my brother physicians, I frequently advise their having palliative treatment, although I always have some hesitancy in doing so.

Dr. STEWART: I simply want to call attention to an omission of Dr. Ashton's. He left out the treatment of fibroids by chloride of ammonium, and I would like to ask whether he did it intentionally or whether it was simply an oversight. I know of benefits being attributed to chloride of ammonium in the medicinal treatment of fibroids.

Dr. G. BETTON MASSEY: Of the seventy-five cases I referred to whose ultimate history have become known to me, in twelve instances the tumor disappeared entirely. As I said before, eighty-five per cent. were practically cured and fifteen per cent. of the patients were made no better and no worse, there being only one instance of a patient being made worse in the whole list of eighty-six cases. I therefore certainly take exception to what was said about the bad effects of electricity either as a treatment for the symptomatic condition or as a treatment for the anatomic condition. It is well known that the late Mr. Keith (the father of hysterectomy) never went back on his statement that electricity should be tried always in these cases in preference to a bloody operation.

I notice, too, that nothing was said in the paper about the dangers of hysterectomy. I have looked that thing up lately, and I find that Pozzi, whose work is strictly surgical, and who gives scarcely any attention to anything but surgical treatment of diseases of women, gives these figures: A mortality in the hands of some dozen or more of the best and most skillful operators in Europe of twenty-eight per cent. for the extraperitoneal method and twenty-five per cent. for the intraperitoneal method. What does this mean? It means that of four women who probably are in good health, who merely have a lump of flesh attached to their

uterus, of which some of them are unconscious—of four such women one would die as a result of this operation for removal; and when you bring it down to that it becomes very much indeed like a question of chance. And it is not necessarily the sickest woman that dies either, nor the one that suffered most. I recall the case of a woman who was forced on the table by the combined action of the family physician and the operator for a harmless fibroid of which she was the unconscious possessor, and who was carried away from the table to the ice-chest. I do not wish to magnify these things, but to give them their place in the discussion of the treatment of fibroid tumors; they decidedly have their place in a discussion where the choice is expressed as to methods.

Then what becomes of the other three women? Probably two will go through life with a worse tumor in front of them in the shape of a hiatus in the abdominal wall, giving rise to a hernia of the intestines, which forms a tumor in front of them far worse than the original tumor. They are all three devoid of their ovaries, and some have trouble with their bowels; many of them have painful conditions either of neurotic origin or traumatic origin. Exactly how many of these three have these conditions we have not been told. From my own observations of the after-conditions, I should say that a very large number of them so suffer. I reported in another room in this house recently some eight cases suffering from the painful after-effects of abdominal section that came under my care at the Howard Hospital, though not all were operated upon for fibroid tumors.

I wish also to say some words about the symptomatic treatment of fibroid where electricity is surely without a peer, though in the anatomic treatment it may yield at times to the advisability of the use of the knife in large tumors. Nothing was said about the bad effects of ergot on the general health when taken for a long time. The value of this remedy is strictly limited to cases in which extrusion of the tumor through the os is possible. For ordinary bleeding fibroids ergot is inferior to electricity, which can be relied upon to effect a permanent cure of this symptom in every case treated.

Dr. W. EASTERLY ASHTON: Electricity is not a modern method by any means. I am not an enthusiast on the question of statistics in any form. If operators have twenty-five per cent. mortality on the other side the ocean, as Dr. Massey would make us believe, I

am sorry for them; if I had a mortality as high as that, I would have to close up my work. Such a percentage does not hold good in America, I am confident. I have no more personal liking for the knife than I have for electricity. What I am after are results. If I could cure these cases with electricity, I would use electricity. Results are good for my patients, and that is what I am after. The better results I get, the more patients will come to me; and, after all, a man who gets bad results in his work will not have any consultation work, and he will not be able to make a living. No man would be idiot enough to use a knife if electricity would cure his cases. I use the knife because I don't believe in electricity. The difference between the trolley car and electrolysis in fibroid tumors is this: When the trolley-car company started their cars running, we could ride on them, while the men who advocate electricity, and have ridden this hobby all their lives, fail to prove that these tumors can be cured by this means. In one there is no cure, while in the other case we can ride if we pay our fare. Any one with half an eye can see that one is a success and the other a failure. It is absurd to think for one instant that if the enthusiastic accounts given us concerning electricity in the treatment of fibroids is true there are not more surgeons taking it up. But it is of no use. That is the reason sensible men do not take it up. Therefore we resort to other methods. I agree with Dr. Noble in reference to supravaginal hysterectomy. I know one operator who claims to do the total operation in ten minutes. Yet it takes his assistants over an hour to complete the operation after he is through. Total hysterectomies are very bloody operations.

In reference to myomectomies, I think I was not quite strong enough in advising this operation in a sufficient number of cases. I mentioned it in cases of pedunculated subperitoneal fibroids; I would not hesitate to use it in tumors with no pedicle.

Dr. Noble is mistaken in reference to broad-ligament cysts; I, along with Dr. Kelly, have realized that the operation as devised by Dr. Pryor, of New York, is a most excellent way of removing ordinary broad-ligament cysts, going down one side and up the other. There are certain broad-ligament tumors, however, which not only involve the broad ligament laterally, but burrow upward under the peritonæum, and are impossible to remove. I saw two attempts in this city made to remove one of these growths. This was an experience I saw in the hands of a well-known operator.

I believe every surgeon now and then will get hold of just such cases. Ordinarily, they are easily removed by Pryor's operation.

I have got but little result from the use of chloride of ammonium, and therefore no longer use it.

Remarks on the Use of the Buried Permanent Suture in the Closure of the Incision in Abdominal Surgery.

BY CHARLES P. NOBLE, M. D.

(See page 756.)

DISCUSSION.

Dr. W. E. ASHTON: I have listened with a great deal of interest to Dr. Noble's paper because it is a subject that interests us all as abdominal operators. I know of no post-operative condition that is more serious for the operator and also for the patient than ventral hernias. I do not believe any operator knows how many hernias he gets. If patients develop hernias, they do not go to the original operator, as a rule, but to other operators. They think the first operator must have treated them improperly. I have seen a large number of these post-operative hernias, cases which have been operated on by my colleagues, who think the first operators have done something wrong. It is impossible to talk about percentages. I believe that Dr. Noble's plan of closing the abdominal wound is a most excellent one, and I believe that what he says as to his small percentage of hernias must be owing to his technic. I have had, however, one or two cases of hernia following operations done by him, proving what I say about the difficulty of estimating percentage. I believe Dr. Noble's method will reduce the number of hernias considerably. Personally myself, I have not been able to get good results with buried sutures. I have tried them and given them up, and it has not been because I was not aseptic; not only was the suturing material rendered sterile, but it was thoroughly so, as I used a temperature of 245° F., which is certainly better than 212°. Possibly I tied the sutures too tightly. I believe if the sutures are tied too tightly it is only a question of time before there is strangulation of the tissues, and within three or four weeks you will find the abdominal wall becoming hard and an abscess form. I would like to see some of Dr. Noble's opera-

tions, because I am interested in the subject. I am now using the through-and-through suture. I have tried every other suture without success, and I would like to see Dr. Noble's method.

Dr. JOHN C. DA COSTA: I congratulate Dr. Noble upon his results, but do not think he would have got such good statistics with reference to hernias could he have followed all his cases up. I feel with Dr. Ashton that where hernias occur the cases as a rule do not come back to the original operator, as cases of hernia drift to me in whom operations have been done by other gentlemen. Our greater success and our smaller number of hernias to-day is probably due to our greater knowledge and to our improved methods of closing the abdomen, and I am glad to hear Dr. Noble speak so strongly in favor of more than one row of sutures.

I have tried the various ways of suturing, and finally have settled down on a way that takes a little longer (perhaps five minutes more) than the usual mode. My own method is to close the peritonæum first with catgut suture, with a running stitch. As soon as that is done I wipe the peritonæum off with a sponge dipped in alcohol, and think a good deal of my success is probably due to that. I have a perfectly clean wound for the next row of sutures, embracing the aponeurosis and muscles not quite to the bottom, closing them, wiping out again with alcohol, and then taking silk-worm gut to close the skin and fat, letting it go through the aponeurosis and the muscle also.

Now, if we want firm union of the abdomen, we must get the aponeurosis nicely approximated. I think where hernias occur in a great many cases it is due to the fact that through-and-through suture of the tissues sometimes brings the muscle and aponeurosis of one side above the muscle and aponeurosis of the other. A great deal of our success in these cases is due to the exact approximation of the two sides. I use fine catgut for the peritonæum, remembering some post-mortems Dr. Mears made several years ago upon cases that died within four hours after operation, and he found in every case the peritonæum was firmly united and had to be torn apart. Anything that will hold the peritonæum together for more than four hours is enough. I have had very few sinuses, but remember some cases where sinuses followed operation, generally in very fat women and in cases where we used gauze sponges, and in every sinus I finally fished a shred of gauze out of the bottom of the sinus, and the wound then closed. The sinus was

due to the fault of the sponge, and since that time I use nothing but marine sponges in wiping out the pelvis.

Dr. RICHARD C. NORRIS: I am very much interested in this subject, and I had some experience with the buried silkworm-gut sutures until I had trouble with one or two cases. The most important element is to obtain primary union of the fascia; we can not rely upon anything else to prevent hernia. Union of the muscle that we readily split with our fingers after we have made section of the fascia certainly will not prevent hernia. It is not reasonable to believe that silkworm gut buried in the fascia will prevent hernia simply because it is buried there indefinitely. If primary union of the fascia fails to occur, it seems to me probable that the silkworm gut will not stand the tension of abdominal strain, and that the suture will gradually tear through the tissues and will not prevent hernia. The question, then, to be determined is whether or not the buried silkworm gut will cause union of the fascia more promptly than any other kind of suture material. I am not ready to believe that it will. If we use any other material that will hold the edges of the wound approximated accurately, we have accomplished as much as can be accomplished by any method to prevent a hernia. There are difficulties in the sterilization of catgut, but I have recently placed the very heavy strands of catgut in absolute alcohol, have sealed the jar hermetically, and have sterilized the gut by placing the jar repeatedly in a Sprague-Schuyler sterilizer, where the temperature is maintained at 240° F. for one hour. Alcohol boils at 170° F., and in this apparatus the gut is boiled under pressure and subjected to high temperature. Bacteriological examinations of gut thus prepared failed to give a culture growth. The strength of the catgut apparently is not impaired.

I would like to hear the opinion of the other members of the Society as to whether or not buried silkworm-gut sutures will prevent hernia if primary union of the fascia does not occur. For my own part, I believe the tension will tease the suture through the tissues, and that ultimately it will pull through just the same as will occur with silver wire or any other suture.

I remember asking Dr. Kelly whether he had trouble with buried silver wire which he uses. He said, "No, not if the wound is dry and there is no bleeding." I formerly used a continuous silk suture for the fascia, and closed the skin with the subcuticular stitch. When there was considerable oozing I learned to look for

trouble, and frequently had to remove the silk placed in the fascia. For aseptic wounds I now employ catgut for the fascia and through-and-through sutures of silkworm gut, embracing all the tissues of the abdominal wall. I would like to know a real objection to using catgut to obtain primary union of the fascia by bringing it together accurately with either a running or quilted stitch, the tension of the wound being relieved by through-and-through silkworm-gut sutures.

Dr. W. S. STEWART: I have no experience in buried-catgut suture, therefore I can not answer that query. I want to refer to a method which I learned from the late Dr. Garrettson in his operations. He used compresses in the margin of the line of sutures to support his ligatures, and I took to that as being a very important thing in his face surgery in obliterating entirely the line of his operations, so that in time the cicatrix would not be visible. It occurred to me that method would make an excellent support in abdominal work. I use the lines of compresses after I have my sutures put in. I use nothing but silkworm gut in the ordinary way, and, by putting compresses along the lines of sutures, and with long strips of adhesive plaster over them, it will prevent the adhesive plaster from freshening up the cicatrix already formed. Having bridged over and added firm support to the line of contact by the opening that was made, the adhesive plaster can remain an indefinite time until the union of the parts has become so firm as to resist the dangers arising from coughing, lifting, or straining at stool. In one case I neglected to use this support, and the result was a rupture in the line of the incision.

Dr. C. P. NOBLE: The first point raised by Dr. Ashton is that if the surgeon does not get good results the patient goes to another surgeon, and that therefore we can not give accurate statistics as to post-operative hernias in our practice. During the time that I have done these two hundred and ninety-seven abdominal operations I have done almost one third as many in which buried sutures were not employed. In these, five to ten per cent. of hernias developed, and I have had to operate on many of them myself. The same thing is true about the sutures coming out. The only member of our Society who has been called on to remove a suture was Dr. Hirst. That was a case of primary suppuration. The patient left the hospital with a sinus. Dr. Hirst, not knowing I used buried sutures, thought that he had a pedicle ligature to deal with, and

advised the patient to have her abdomen opened to have the offending material removed. She came to me about that, and I was able to remove it with a forceps. So the operator who operates on these cases of hernia does hear about it. I am satisfied that while there may be some hernias in these cases, there have been a very small number. My observation upon the hernias and upon suppurations when the through-and-through suture is used is based on my own experience. There is from ten to fifteen per cent. of suppurations when the through-and-through suture is used, and somewhere about ten per cent. of hernias.

Dr. Norris asks the question as to whether silkworm gut is the best suture material to use in obtaining accurate coaptation of the wound and primary union. I believe this is true. At the same time it does have certain other advantages: in the first place, it will not break. In all my work I have not had a case of eventration. We all know it happens to surgeons using other methods of suturing to have the abdominal wound open and the bowels come out one week or one day after operation. Almost every one who has used silver wire or catgut can recall such cases. One advantage is that for some weeks after the patient gets up the suture will take off the strain while firm union is taking place. Later, the suture becomes loose because of tissue atrophy. It takes somewhere between six weeks to two months for cicatrization. In poor people who have to earn their living silkworm gut is very useful as affording this support until thorough healing has resulted, because many of these women must go to work early after operation.

Silver wire is not superior to silkworm gut. It will break, and I have known cases in which it broke and the bowels came out or a strangulated hernia resulted. By paying great attention to the twisting and to turning down the ends of the suture, and using a large heavy wire, there is no doubt that the disadvantages of silver wire can be minimized. If I had to give up silkworm gut I would use silver wire.

The next question is, Why not use catgut? I do not think we can rely on it to prevent eventration if infection takes place, or if it does not take place if there is much coughing or straining. If I used catgut at all, I should certainly chromicize it, and not use ordinary catgut.

Report of a Tubal Cyst simulating Appendicitis, with Presentation of the Specimen.

Dr. E. E. MONTGOMERY: After opening the cyst—the specimen which I shall show you to-night—I am satisfied that I made a mistake in the title given to the Secretary, as the cyst, apparently, while closely connected with the tube, is not a part of it. The case, however, is of sufficient interest, I think, to be worthy of your consideration for a short time.

The patient from whom it was removed presents the following history: Nineteen years of age, an orphan; while at boarding school a year ago was confined to bed for ten days with an attack of severe pain in the right side, which was pronounced appendicitis. During the past year she has had ten of these attacks. I saw her in one on the 13th of the past month. She was then complaining of severe pain in the lower part of the abdomen, which required an anodyne.

On examination, there was no special distention of the abdomen, but quite marked hyperæsthesia, more intense upon the right side, extending across the abdomen below the umbilicus. The abdominal walls were quite thick, and contained a large amount of fat; the muscles were pretty firm and resisting over the right side, and presented no tenderness upon the left side. Vaginal and rectal examination afforded no special information, excepting the uterus seemed to be long and more nearly in the axis of the vagina than normal.

On inquiry, I found that the patient had been examined by some six physicians, all of whom had advised against operation. She informed me she had been given a prescription for morphine granules, and directed to take one whenever she had pain. As these attacks had occurred so frequently during the year, and she had no one in particular to restrain her in the use of the morphine, it was quite reasonable to expect that pain would frequently occur as an excuse for its use. The patient showed that she was becoming a slave to the drug, and examination under an anæsthetic was made the following day.

While there was a fullness recognized in the right side, it was not determined whether or not it was due to a distention of the cæcum. The recurring attacks, the fact that the patient was becoming a slave to the use of morphine, led me to advise an opera-

tion, although the character of the symptoms presented and the history of the attacks did not lead me to believe there was any sup-puration or anything more than a catarrhal appendicitis. An incision was made over the right side, and, as it was expected, the fat and muscle wall was quite thick. Upon opening the peritonæum, a mass the size of an orange, dark in color, surrounded by some free blood and serum, was found above the brim of the pelvis in the right iliac fossa. The incision was enlarged sufficiently to permit its being raised up, when it was found that its pedicle was twisted four times. The examination disclosed that this pedicle principally consisted of the extremity of the right Fallopian tube beyond the ovary. The right ovary was free from any special disease. The pedicle was ligated and the tumor removed.

The colon was then examined, and it was found that the appendix was situated beneath the peritonæum, curling around the end of the cæcum. It was somewhat enlarged, and, believing from its situation that it at times became filled with gas or fæces, giving rise to discomfort, the peritonæum was opened, appendix dissected up, cut flush with the bowel, then sutured, and peritonæum stitched over it. The wound was closed with three silkworm-gut sutures, in addition to a double row of buried catgut.

On examination, this cyst presented the appearance of having undergone strangulation; it was black, its vessels distended, and the tube filled with clotted blood, a clot at the end of the longer fimbria. The tube with its fimbria passed around the cyst. The cyst wall was extremely thin, and apparently in one place was about ready to rupture. Enveloped as the cyst was with the tube and its fimbria, it was at first supposed to be a tubal cyst or hydrosalpinx, although it was difficult to understand how a hydrosalpinx should exist only in the external end without involvement of the inner two inches of the tube.

The history of the case and the general condition precluded the possibility of the condition being an ectopic gestation. It was difficult also to establish a hypothesis which would enable us to account for the existence of hydrosalpinx. Upon opening the sac, it was found to be filled with bloody serum, and the sac wall was evidently independent of the tube. Evidently, then, it was a broad-ligament cyst, which, as it increased in size, has drawn out the proximal end of the right tube until the size of the tumor has led to formation of a small pedicle consisting of the peritonæum and

the tube. It is probable the attacks of pain have been due to temporary obstruction of the circulation from twisting of this pedicle. I can not believe that the extreme twisting found at the time the operation was done had existed longer than a few days prior to the operation, as the circulation was completely cut off, and yet there did not exist any sign of localized peritonitis, and there were no adhesions.

DISCUSSION.

Dr. RICHARD C. NORRIS: I should like to report a case analogous to the one just described. I saw with my friend, Dr. Foltz, at Chestnut Hill, a patient, unmarried, who gave a history very much like Dr. Montgomery's patient. She had had several attacks of pain located in the right iliac region, and had been treated with salines to relieve pain, and there was a question of doubt in my mind as to the diagnosis.

I examined the patient very carefully, and found that the uterus was deflected toward the left side; the base of the right broad ligament seemed to be drawn up toward the region of the appendix, and a probable diagnosis of appendicitis was made in view of the history, although it was thought at the time that there might be an intercurrent inflammation of a broad-ligament cyst. The patient was prepared for an operation for appendicitis. When she was under ether the relaxation of the abdominal muscles and the absence of pain permitted careful palpation, which induced me to make a median incision. I found an intraligamentary cyst which had been raised out of the pelvis, and which was adherent to the head of the cæcum and attached to the appendix. The appendix itself was not apparently diseased beyond this adhesion. The cyst had no pedicle. I ligated the ovarian artery close to the pelvic wall, and began an enucleation of the cyst. While this was proceeding, I realized the proximity of the ureter to the base of the tumor, and, proceeding with great care, the tumor was finally enucleated and the two edges of the broad ligament were whipped together.

The patient was put to bed, and for ten days had no trouble. I was then called to see her, and found the unfortunate condition of beginning leakage of urine through the lower angle of the wound. Evidently the ureter had been injured, and a uretero-abdominal fistula was the result. Talking to some of my friends, I found they had had similar experiences. I would like to know

how such an accident could be avoided. The ureter doubtless was slightly injured at the time of enucleation, and this injury was followed by ultimate destruction of a portion of the wall of the ureter, and finally caused a fistula. I had the patient transferred to the Methodist Hospital to attempt to implant the ureter in the bladder, but just on the eve of the operation the patient declined it and passed from my care. How can we know whether or not we have made a slight injury to the outer coat of the ureter that will lead to this unfortunate result? This case was very interesting from a diagnostic point of view. It proved to be an intraligamentary cyst which was adherent to the head of the cæcum and also to the appendix, and on account of the repeated attacks of inflammation simulated appendicitis. It was a very thin-walled cyst, containing a clear fluid.

Dr. G. BETTON MASSEY: I understood the late Dr. Goodell to say that in cysts of that nature he frequently ruptured them, and that they did not return.

Dr. C. P. NOBLE: I think Dr. Norris' question is easier to ask than to answer. I see no means by which one could recognize a slight wound to the ureter deep in the broad ligament. I think we have to find out about it by waiting for a fistula. As to rupture of broad-ligament cysts, of course that was a form of treatment advocated for the ordinary parovarian cyst. I have had a number of cases of parovarian tumors under my care, having had spontaneous rupture with subsequent refilling. The largest tumor I ever saw (two washtubs full) was one which had ruptured several times, and each time the woman would pass urine by the quart and have watery diarrhoea for days after the disappearance of the tumor. The case was operated on by the late Dr. Ellwood Wilson. I have myself twice cut into broad-ligament cysts from the vagina and packed with gauze. I am sorry to say that one I had to take out subsequently, and the other will require the same treatment.

Dr. Montgomery's case, I think, is of interest especially from the standpoint of diagnosis.

Dr. MONTGOMERY: The discussion has wandered a little from the presentation of the specimen I have given. In regard to this particular case, it was about a rupture, but fortunately the operation was done before this took place, as strangulation of the cyst had occurred to such a degree that the portion beyond the twist was practically dead. If rupture had occurred, it would have been

followed by inflammation and a dead mass in the peritoneal cavity to take care of. I have seen a number of cases of broad-ligament cyst. In one I attempted the removal of the cyst, and was deterred by urine running over its top and extensive adhesions, which rendered difficult removal. In this case the cavity was packed with iodoform gauze with the hope that the cyst would be obliterated. A few months later I found the cyst larger than before, and I then suggested an opening through the vagina; but, knowing the ureter would not be affected by that procedure, the patient would not consent. Dr. Stewart will remember a case in which I operated at St. Joseph's Hospital, where we peeled out a large-sized tumor without opening the peritoneal cavity. It was a case in which the peritonæum covering the cyst had become adherent to the parietal peritonæum, and both layers were cut through. The sac peeled out without having to use a ligature except for a small surface at the base of the denudation. This patient had been tapped seven times prior to the radical operation. In regard to the ureter in such cases, when it is evident the position is such that the ureter is likely to be affected, it would be better to open the peritonæum above, follow down the ureter, and dissect it away from the sac. In such cases we would probably be able to remove the sac with less danger to the ureter; but even then the adhesions between the ureter and the sac may be so dense as to produce injury of the former.

Official Transactions.

FRANK W. TALLEY, *Secretary.*

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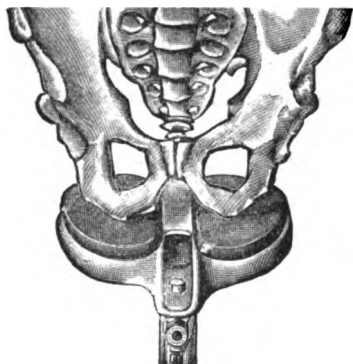
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